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Biological Resources Survey

Hard Six Cellars Winery P16-00333 & Use Permit Exception to Conservation Regulations P19-00315
Planning Commission Hearing October 16, 2019

PACIFIC BIOLOGY
635 Carmel Avenue, Albany, CA 94706

Fingerman Property
1755 South Fork Diamond Mountain Road
Calistoga, Napa County

BIOLOGICAL HABITAT EVALUATION REPORT

PREPARED FOR:

Prunuske Chatham, Inc.
400 Morris Street, Suite G
Sebastopol, CA 95472
Contact: Carrie Lukacic
707/824-4600

PREPARED BY:

Pacific Biology
635 Carmel Avenue
Albany, CA 94706
Contact: Josh Phillips
510/527-1008

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EXECUTIVE SUMMARY

The proposed project involves the construction of a 3,267 square foot (sf) winery, 5,486 sf of exterior work areas, a 7,134 sf wine cave with three proposed portals, the restoration of the existing pond, and improvements to the driveway entrance. Natural habitats within or immediately boarding the project's disturbance boundary include fresh emergent wetland (associated with the onsite pond), montane hardwood, annual grassland/ruderal, mixed chaparral, and redwood. The onsite redwood habitat is considered a sensitive plant community by the California Department of Fish and Wildlife (CDFW) and portions of the onsite mixed chaparral may be described as Stanford manzanita chaparral, which is also considered a sensitive plant community by the CDFW. The project site provides suitable habitat for special-status plants and two potentially special-status plant species were identified during the August reconnaissance survey – species that appear to match the description of the vegetative characteristics for Napa false indigo (*Amorpha californica* var. *napensis*) (CRPR List 1B.2) and Calistoga ceanothus (*Ceanothus divergens*) (CRPR List 1.B.2) were observed, but the identity of these plants should be confirmed during plant's flowering phase. Appropriately timed surveys are required to determine if these or other special-status plants occur on the project site. Avoidance measures are also required to prevent impacts to bird species potentially nesting on or near the project site and to protect western pond turtle (should the species occur in the onsite pond). The onsite pond is expected to be under the jurisdiction of the Regional Water Quality Control Board (RWQCB) and the CDFW. The associated wetlands may also be under the jurisdiction of the RWQCB. The pond and associated wetlands are not expected to be under the jurisdiction of the Army Corps of Engineers (ACOE) because there is no hydrologic connection of the pond to a Waters of the U.S. The potential occurrence of northern spotted owl (*Strix occidentalis caurina*), a state and federally threatened species, is addressed in a separate report.

1.0 INTRODUCTION

Pacific Biology and Vollmar Natural Lands Consulting (VNLC) conducted a biological habitat evaluation of the 1755 South Fork Diamond Mountain Road project site, located in Calistoga, Napa County, California. The evaluation was conducted to identify and characterize onsite and surrounding habitats; to assess the potential of these habitats to support special-status plant and wildlife species; to identify any wetlands, riparian areas, or other sensitive habitats present; to evaluate potential project-related impacts to sensitive biological resources; and to identify feasible avoidance measures that could be implemented to protect sensitive biological resources.

2.0 PROJECT LOCATION

The project site is located at 1755 South Fork Diamond Mountain Road, which is accessed from Diamond Mountain Road via the Saint Helena Highway (CA-29). The project site is located in the hills approximately 2 miles south of Calistoga (**Figure 1**). The site is in a sparsely developed area and is generally bordered by vineyards and undeveloped lands (including forested and chaparral habitats). The project site is mapped on the Calistoga USGS 7.5-minute quadrangle.

3.0 PROJECT DESCRIPTION

The proposed project involves the construction of a 3,267 square foot (sf) winery, 5,486 sf of exterior work areas, a 7,134 sf wine cave with three proposed portals, and the restoration of the existing pond to be used as a landscape element. Improvements would also be made to the driveway entrance, where the existing driveway meets South Fork Diamond Mountain Road. The approximate disturbance boundaries of the proposed project are shown in **Figure 2**.

The winery will be constructed on an area of the property currently used to house horses. The fenced area includes an onsite barn/storage structure. All winery construction activities will occur within the footprint of the barn and surrounding fenced horse area.

The wine cave will be constructed underground with three proposed exit portals. Portal #1 will serve as the primary cave access and will be located immediately adjacent to the winery. The other two portals will be the only other aboveground components of the cave.

Construction of the proposed wine cave exit portals will require excavation of the portal, construction of a concrete bulkhead wall, and installation of two 22-foot long entryway wing walls for each portal. Installation of a temporary road will be required to provide access for the excavator and concrete trucks during construction. The temporary access road will be located between the existing unpaved road on the north side of the pond towards the portals, which will be located just below the paved driveway to the residence. The temporary access road will be

between 10 and 12 feet wide and approximately 55 feet long for Portal #2 and 78 feet long for Portal #3. The area between the two wing walls at each portal will be used for winery guest areas with tables and chairs. The temporary access roads will be converted to narrow walking paths for guests, and the disturbed areas will be restored and planted native vegetation.

Spoil material from the cave construction will be used to rehabilitate the existing pond. The pond will be drained. Planting material on the pond bottom will be removed and stored and used as planting medium for pond restoration. Approximately 3,900 cubic yards of spoil material from the wine cave construction will be stockpiled in the drained pond. Once the wine cave is constructed, the pond will be rough graded according to the landscape design and an artificial liner will be placed to stop pond leakage. The spoil material will be spread over the liner. The stored growing medium will be placed and augmented with compost and topsoil. Native grasses and forbs will be planted and kept sufficiently moist until the rainy season. The pond will be allowed to fill from rainfall and surface flow as it currently does.

FIGURE 1: REGIONAL LOCATION
Fingerman Property, Calistoga, California

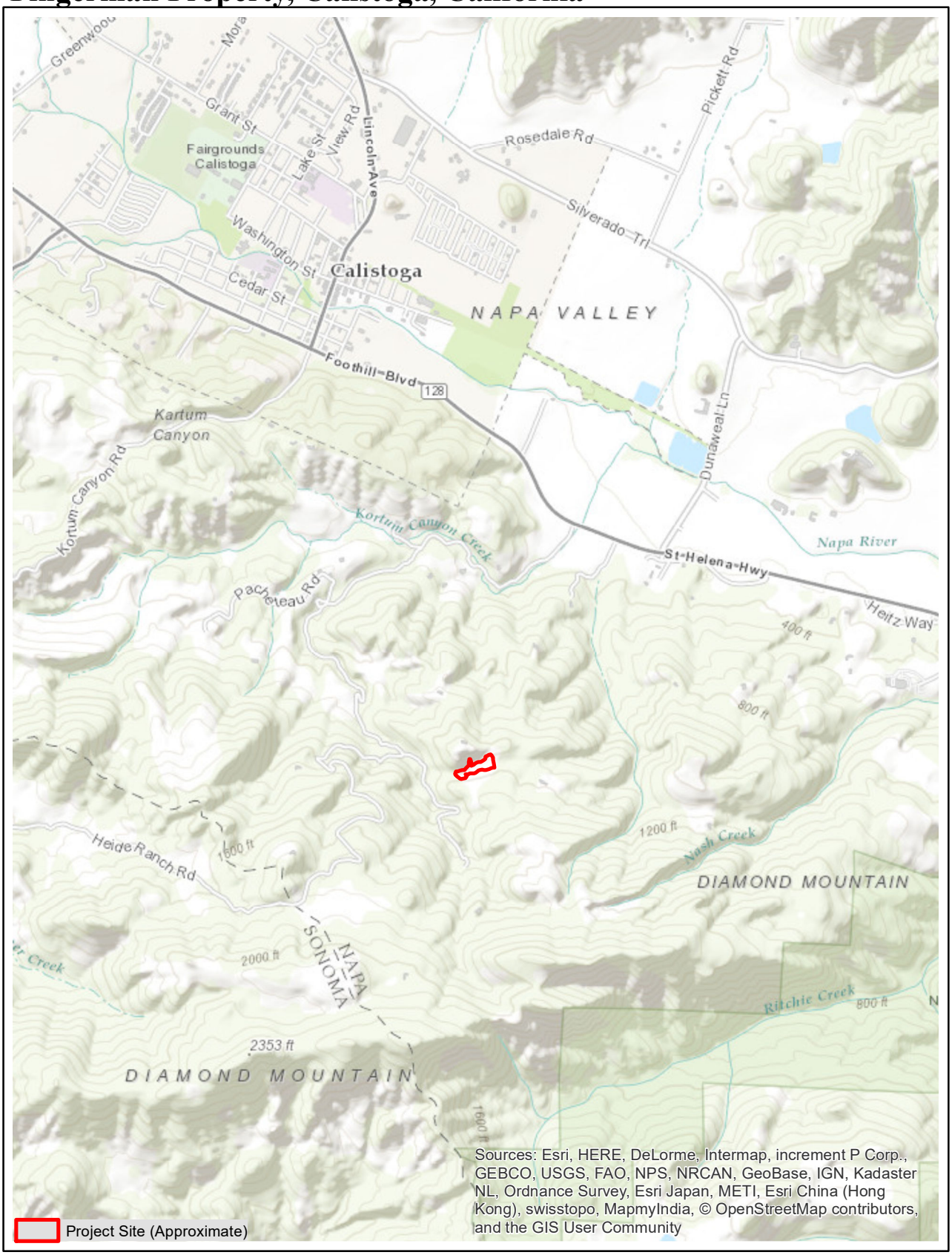
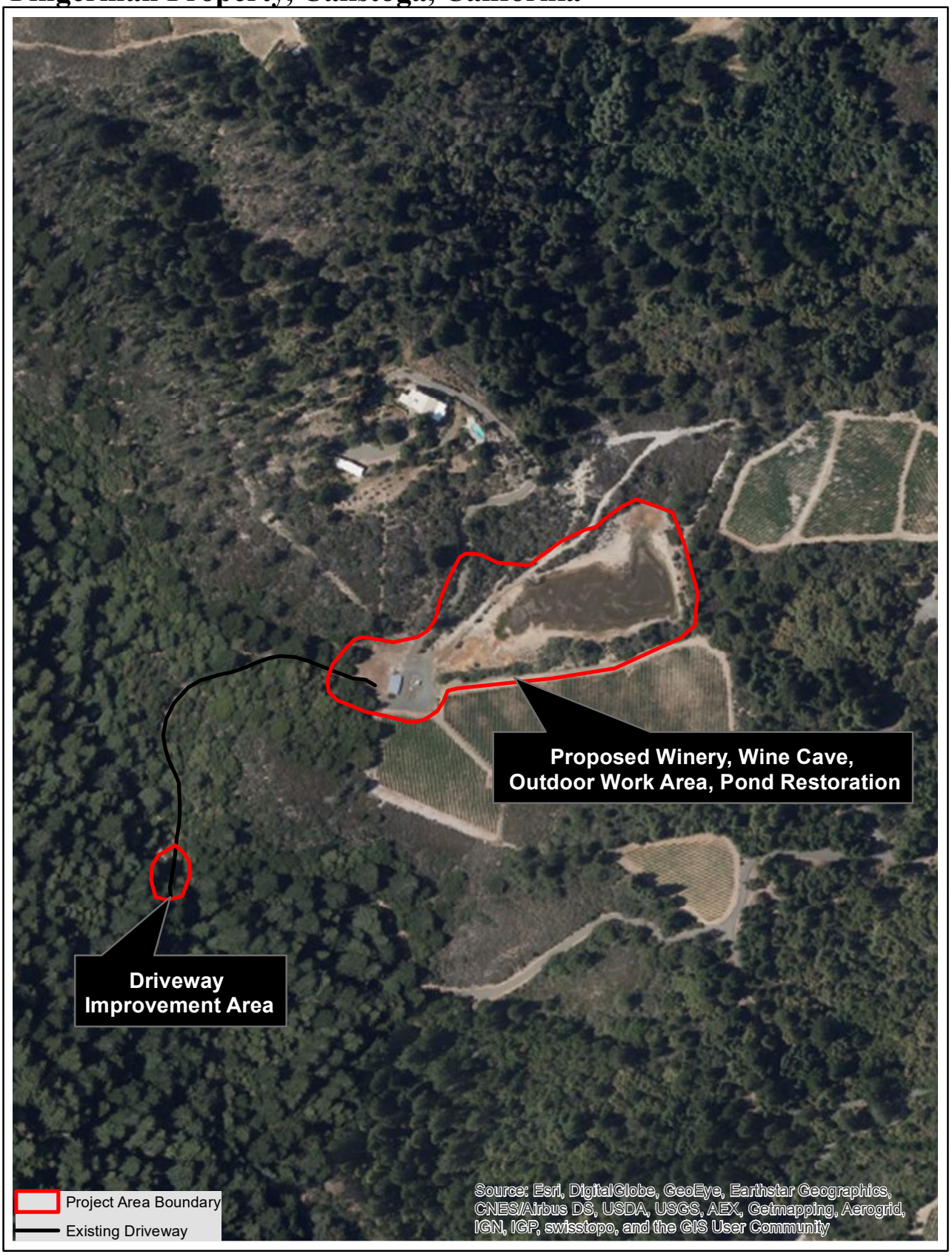


FIGURE 2: PROJECT SITE
Fingerman Property, Calistoga, California



4.0 METHODOLOGY

Database and Information Review

Several datasets were reviewed prior to the field survey in order to help determine the potential for special-status species to occur on the project site. The latest version of the California Natural Diversity Database (CNDDB), including records for northern spotted owl, was reviewed for the project area. The intent of the database review was to document all occurrences of special-status species in the project area and to determine their location relative to the project site. A species list was also obtained from the U.S. Fish and Wildlife Service (USFWS) of federally listed species and designated critical habitat in the project area (**Appendix A**). A California Native Plant Society (CNPS) 9-quad search (from the Calistoga quadrangle) was also conducted. Existing spatial information depicting the project area was compiled and reviewed. This information included the project boundary (provided by PCI), publicly available digital ortho-rectified aerial photography, topographical quadrangle map (Calistoga USGS quad) and digital elevation models data, soils and geology information, and stream data. Some of these datasets were converted to GPS files and loaded on to a professional-grade GPS unit to facilitate navigation and data collection during the field survey.

Field Survey

Josh Phillips (Principal Biologist of Pacific Biology) and Jake Schweitzer (Senior Botanist of VNLC) conducted a reconnaissance-level field survey on August 25, 2016, from 3:30 pm to 7:45 pm (8.5 person hours). At the onset of the survey, the temperature was approximately 80 degrees F, conditions were sunny, and there was little to no breeze; temperatures lowered and the breeze increased as the afternoon progressed. Mr. Phillips' and Mr. Schweitzer's resumes are included in **Appendix B**.

The survey was conducted in accordance with the requirements of Napa County's Guidelines for Preparing Biological Resources Reconnaissance Surveys. The field survey included walking the entire project site and describing the onsite and adjacent habitats. Where seasonal timing allowed, all plants observed were identified to the extent necessary to determine their rarity and listing status (a list of all plant species observed is provided later in this report). A search was conducted for potentially jurisdictional resources (e.g., creeks, riparian habitat, wetlands) and other sensitive plant communities (e.g., native grasslands)**.** All wildlife species observed were identified.

A daytime survey of the onsite pond was conducted for amphibians (e.g., frogs) and aquatic reptiles (e.g., turtles). This included listening for frog calls, observing the pond from fixed locations with binoculars, and walking the circumference of the pond several times.

A focus of the survey was also to evaluate the suitability of habitats on and near the project site for northern spotted owl (*Strix occidentalis caurina*), a state and federally threatened species. This included evaluating the characteristics (e.g., tree size and species, understory composition, canopy coverage and composition, and sun exposure) of nearby forested habitats.

The field survey served to characterize the biological resources occurring on and near the project site and to evaluate the potential for special-status species to occur based on the suitability of habitat, known range and life history requirements of special-status species occurring in the region, and other factors. The area covered by the reconnaissance survey included the project boundaries shown in **Figure 2**, as well as surrounding areas within approximately 200 feet that were accessible.

5.0 EXISTING BIOLOGICAL CONDITIONS

(i) Regional Setting

The project site is located in the hills to the south of Calistoga, which are part of the Southern Mayacamas Mountains landscape unit. The project site is within the Napa River watershed, with the Napa River being approximately 1.5 miles north of the property (**Figure 1**). The project site is at an elevation of approximately 1,076 to 1,230 feet above sea level (328-375 meters) (USGS 1997).

The project region is known for vineyards and much of the valley and some hillside areas are planted as vineyards. The area is rural and dominated by vineyard agriculture as well as natural habitats consisting of coniferous forest, oak woodland, chaparral, and open grasslands. In general, the coniferous forests and oak woodlands occupy north-facing slopes and valley bottoms. Chaparral is most common along the steepest, mostly south-facing slopes and on shallow, rocky soils. Grasslands occur on deep to moderately deep soils along less steep slopes, ridge tops, and adjacent to larger stream corridors. These habitats are bisected by a network of mostly seasonal streams that feed into the Napa River. The project site itself is located in a transition zone between densely forested habitats (i.e., redwood, Douglas-fir, montane hardwood), chaparral habitats, and agricultural uses.

(ii) Geology and Soils

As is typical for the northern Bay Area region, geology and soil units in the vicinity of the project site are dominated by relatively recent volcanic materials and, to a lesser extent, much older Franciscan mélange (USGS 1997). The volcanic-derived soils are particularly prized for wine grape cultivation, as the soils contribute to complexity in flavor. Gravelly soils and large rock outcrops are relatively common in the region. Soils on the project site are derived entirely from Sonoma Volcanics geologic formations, in the form of ash-flow tuff and andesitic to basaltic flows (ibid). Soil texture on the site ranges from clay loam to sand and gravel, depending on slope and aspect. As would be expected, a man-made pond on the project site supports finer materials. Soils on the site as a whole are acidic, with mapped soils featuring an average pH of approximately 5.5 (USDA 2006).

(iii) Climate

Climate in the region is broadly classified as "Mediterranean," with cool, wet winters and hot, dry summers. Napa Valley is located near the center of the Coast Ranges geomorphic province, and thus is subject to a moderate degree of maritime influence—fog is uncommon, but the area is cooler in the summer and warmer in the winter than areas farther inland (e.g., the eastern Coast Ranges and Central Valley). Thus, the Napa Valley region is a transition zone where coastal and inland plant species converge. For example, the easternmost occurrences of coast redwood (*Sequoia sempervirens*) at that latitude occur along the hill slopes adjacent to the valley (Jepson 2016). Mean annual precipitation (from 1980 to 2010) in the vicinity of the project site is approximately 45.7 inches, with approximately 98 percent occurring during the "wet season" from October through May (PRISM 2016). The mean annual temperature is 58 degrees, with the coldest month (January) averaging 46.5 degrees Fahrenheit, and the warmest month (July) averaging 71 degrees. The 2015-2016 wet season was just below average in terms of precipitation, with 42.6 inches versus a mean of 44.8 inches. The season was also slightly warmer than average, with a mean of 54.2 degrees Fahrenheit, compared to 52.7 (ibid).

(iv) Project Site Botanical Resources

The subject property is 53 acres in size, while the project area boundary is approximately 4.6 acres. For the purposes of this report, the project area boundary includes all areas that are within or bordering the project's disturbance boundary. The terms "project area boundary" and "project site" are used interchangeably, while the term "project disturbance boundary" is used only to indicate areas that would be directly disturbed by construction activities. It should be noted that the project area boundary is larger the project disturbance boundary. The subject property

currently includes a single-family residence, four acres of producing vineyards, a storage shed/barn, an existing pond, and a paved driveway/access road.

The project site consists of a mix of natural habitats and anthropogenic features. The western portion of the site encompasses several structures, as well as natural habitats (**Figure 3**). Many of the structures are associated with the vineyard operation just south of the project site, which is maintained by the property landowner. The eastern portion of the site contains only natural habitat. Natural habitats within the project area boundary include the following: fresh emergent wetland (associated with the onsite pond), annual grassland/ruderal, mixed chaparral, redwood, and montane hardwood-conifer (**Figure 3**). It should be noted that while montane hardwood-conifer occurs within the project area boundary, this habitat type is not within the project disturbance boundary and no woodland areas are proposed for removal. The onsite habitat classes are treated in the California Wildlife Habitat Relationships vegetation classification system (CWHR) (Mayer and Laudenslayer 1988). Descriptions of each habitat type within the project area boundary are provided below. Representative photographs of the habitats are included in **Appendix C**.

A total of 114 vascular plant taxa were documented in the habitats within the project area boundary. Of these, 75 are native to California (66%), and 39 are introduced (34%). Of the introduced species, 21 (22% of all taxa) are considered to be invasive by the California Invasive Plant Council (Cal-IPC 2016). A table listing all plant taxa observed on the site, including their native/non-native/invasive status, is provided as **Appendix D**. It is important to note that the survey conducted in support of this report was reconnaissance in nature, consisting of only one field survey in late summer. Therefore, many additional plant taxa are expected to occur on the project site, but would require additional surveys—particularly during spring time—to identify. The project site is diverse for its size, a function of the variety of habitats as well as rather specialized soil types (acidic volcanic soils).

Property Driveway

Forward-Kidd complex (gravelly loam)

Diamond Mountain Rd

S Fork Diamond Mountain Rd

Diamond Mountain Rd

Aiken loam (loam)

Source: Esri, DigitalGlobe, GeoEye, i-cubed, USDA, USGS, AEX, Getmapping, Aerogrid, IGN, IGP, swisstopo, and the GIS User Community

Vollmar NATURAL LANDS CONSULTING

Legend

- Road
- Soil Unit Boundary
- Project Area Boundary (4.6 ac.)

Plant Communities (CWHR classes)

- Freshwater Emergent Wetland
- Montane Hardwood-Conifer
- Annual Grassland/Ruderal
- Mixed Chaparral
- Redwood

Data Sources: VNLC, 2016 | USGS, Various Prunuske Chatham, 2016 | USDA, 2006 TIGER, 2010 | GoogleMaps, 2016
GIS/Cartography by Jake Schweitzer, Aug. 2016
Map File: Fingerman_B-P_2016-0929.mxd

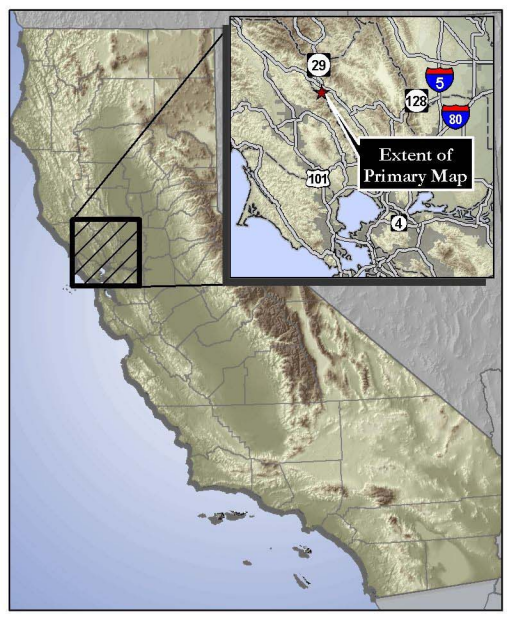
FIGURE 3
Botanical Resources Map
Fingerman Property, Napa County, CA

N W E S

1:1,800
(1 inch = 150 feet at tabloid layout)

0 37.5 75 Meters

0 75 150 300 Feet



Fresh Emergent Wetland

The majority of the eastern portion of the project site is dominated by a large man-made pond and its associated wetland habitat (**Figure 3**). The pond was a little less than half full during the August field survey, and was surrounded by dried wetland soils that supported a wide variety of hydrophytic (wetland-associated) plant species. The vegetation zones occur as concentric rings, with each ring outward from the water line supporting species progressively less adapted to saturated soils.

The primary aquatic plant species inhabiting the pond's water column is longleaf pondweed (*Potamogeton nodosus*). At the water's edge was an assemblage of emergent obligate wetland plants, including bog bulrush (*Schoenoplectus mucronatus*), California bulrush (*S. californicus*), common spikerush (*Eleocharis macrostachya*), and northern water plantain (*Alisma triviale*). Areas topographically above the pond shoreline supported plant species more associated with seasonal wetlands, where inundation is of shorter duration (i.e., only during winter/early spring) and thus soils are more aerated. Common plant species observed in this zone include Mediterranean rabbitsfoot grass (*Polypogon maritimus*), western toad rush (*Juncus bufonius* var. *occidentalis*), pointed rush (*J. oxymeris*), and poverty rush (*J. tenuis*). Only one individual tree was noted within this zone (and the pond habitat as a whole), an arroyo willow (*Salix lasiolepis*). The next band of vegetation above the pond supported plants associated with seasonal wetlands, but which also occur in upland habitats. These include Italian rye grass (*Festuca perennis*), Mediterranean barley (*Hordeum marinum* ssp. *Gussoneanum*), and clustered dock (*Rumex conglomeratus*).

Annual Grassland / Ruderal

Introduced annual grasses and associated weedy forbs occupy the western, upper edges of the pond as well as disturbed habitat associated with the property developments. Many of the same species that grow along the upland margins of the pond also grow along the edges, and occasionally within, the property driveway, access roads, and parking lot. Dominant grass species identified during the August 2016 survey include Italian ryegrass, wild oats (*Avena* spp.), ripgut brome (*Bromus diandrus*), and nit grass. Associated forb species included Italian thistle (*Carduus pycnocephalus*), sharpleaf cancerwort (*Kickxia elatine*), doveweed (*Croton setigerus*), hawkbit (*Leontodon saxatilis*), and cat's ear (*Hypochaeris* spp.). This habitat is generally disturbed and supports few native plant species, and thus has a low potential to support special-status plants.

Mixed Chaparral

Mixed chaparral occurs along the northern edge of the project site. The habitat is concentrated on a relatively steep, south-facing hill slope that is noteworthy for the prevalence of very gravelly, brightly colored volcanic soils. The soils are conspicuous as a result of a very sparse layer of herbaceous plants—the plant community consists mostly of shrub species that are specially adapted to cope with low fertility, minimal water retention, and high erosion potential. The dominant shrub species in the habitat are Stanford's manzanita, hoary manzanita (*Arctostaphylos canescens* ssp. *canescens*), chamise (*Adenostoma fasciculatum*), toyon (*Heteromeles arbutifolia*), and chaparral oak (*Quercus wislizeni* var. *frutescens*). The only widespread herb observed growing under the shrubs is the native Sonoma sage (*Saliva sonomensis*). More localized associated plants in the herb layer included red brome (*Bromus madritensis*), rattail fescue (*Festuca myuros*), gold-wire (*Hypericum concinnum*), and navarretia species (*Navarretia* spp.).

Redwood

Redwood habitat is predominant throughout the western-most portion of the project site, where the property driveway meets Diamond Mountain Road (**Figure 3**). This is a forest habitat within a drainage valley, which features relatively deep, fertile clay loam soils. As noted above, redwood groves within the Napa Valley region represent the eastern-most occurrences at that latitude. The onsite habitat consists of tall, mature conifers as well as a sub- canopy of associated hardwood trees. Dominant species include coast redwood as well as Douglas-fir in the upper canopy, and these are underlain by hardwoods such as tanoak (*Notholithocarpus densiflorus*), bigleaf maple (*Acer macrophyllum*), and California bay. The shrub/vine stratum consists of shade-tolerant species such as beaked hazelnut (*Corylus cornuta* ssp. *californica*), California blackberry (*Rubus ursinus*), and spicebush (*Calycanthus occidentalis*). The herbaceous groundcover consisted of an assemblage of mostly native grasses, forbs, and ferns, including vanilla grass (*Anthoxanthum occidentale*), creeping snowberry (*Symphoricarpos mollis*), trail plant (*Adenocaulon bicolor*), and western sword fern (*Polystichum munitum*). The only commonly occurring introduced plant observed in this habitat is lemon balm (*Melissa officinalis*), an escaped cultivar.

Montane Hardwood-Conifer

This habitat occurs in the southern, eastern, and western edges of the project area boundary (**Figure 3**), but the proposed project does not include the removal of these forested areas. This forest type represents a transitional habitat between chaparral and the Redwood/Douglas-fir

habitats to the east and west of the project site. The transitional nature of the habitat is likely the result of soils that are intermediate between those supporting each habitat, in that they are moderately shallow and gravelly. The habitat is dominated by hardwood and conifer trees, but features a significant shrub understory. The most common hardwood tree species include interior live oak (*Quercus wislizeni*), canyon live oak (*Q. chrysolepis*), California bay (*Umbellularia californica*) and Pacific madrone (*Arbutus menziesii*). Among these hardwoods are scattered Douglas-fir trees (*Pseudotsuga menziesii*) and a few knobcone pines (*Pinus attenuata*) and foothill pines (*P. sabiniana*). The shrub layer consists primarily of coyote brush (*Baccharis pilularis*), Stanford's manzanita (*Arctostaphylos stanfordiana* ssp. *stanfordiana*), and poison oak (*Toxicodendron diversilobum*). A couple individuals of the invasive French broom (*Genista monspessulana*) and Spanish broom (*Spartium junceum*) were observed at the eastern edge of the project site. The herbaceous layer was fairly disturbed and rather sparse, consisting mostly of a few small stands of dogtail grass (*Cynosurus echinatus*), nit grass (*Gastridium phleoides*), field hedge parsley (*Torilis arvensis*), and climbing bedstraw (*Galium porrigens*).

6.0 SPECIAL-STATUS SPECIES

Figure 4 shows the location of special-status plant and wildlife species documented by the CNDDB in the project area (i.e., within approximately four miles of the project site).[1] The potential occurrence on the project site of these special-status species is discussed below.

(i) Special-Status Plant Species

For the purposes of this report, special-status plants include those species that are state or federally listed as Rare, Threatened or Endangered; federal candidates for listing; proposed for state or federal listing; or included on California Rare Plant Rank List 1, 2, 3, or 4 of the CNPS Inventory of Rare and Endangered Plants of California (CNPS Inventory).

Special-status plant species known from the project area are listed in **Table 1**, along with their status, habitat association, and evaluation of the suitability of onsite habitats to support the plants. Given the diversity and overall quality of habitats on the project site, there is moderate to high potential for special-status plants to occur on the site. Two potentially special-status plant species were identified during the August reconnaissance survey – species that appear to match the description of the vegetative characteristics for Napa false indigo (*Amorpha californica* var. *napensis*) (CRPR List 1B.2) and Calistoga ceanothus (*Ceanothus divergens*) (CRPR List 1.B.2) were observed, but the identity of these plants should be confirmed during plant's flowering

[1] Figure 4 does not include CNDDB records of northern spotted owl documented in the project area because the potential occurrence of northern spotted owl is addressed in a separate report.

phase. The potential Calistoga ceanothus plants were observed in the onsite mixed chaparral habitat and the potential Napa false indigo plants were observed in the montane hardwood-conifer habitat.

Among the taxa listed in **Table 1** as having potential to occur on the site, those listed as occurring in chaparral and cismontane woodland habitats have the greatest potential to occur (these species are highlighted in gray in Table 1). These habitats are known to support a large number of rare plants in the region and provide quality habitat on the site. The mixed chaparral in particular provides excellent habitat for special-status plants, due to the distinctive soils as well as the general open nature of the habitat (i.e., a lack of competition from generalist plants and invasive species).

Construction of Portal #2 and Portal #3 will result in approximately 3,000 sf of ground disturbance in mixed chaparral habitat. Additionally, portions of the wine cave tunnels would be excavated beneath the mixed chaparral habitat, at distances of approximately 4 feet to 30 feet beneath the surface. The roots of Calistoga ceanothus can extend deep into ground. Therefore, it is possible that subsurface excavation could damage the roots and compromise the health of Calistoga ceanothus plants potentially present. Given the potential presence of special-status plants in the mixed chaparral and other onsite habitats, future actions and potentially avoidance measures are required to protect special-status plant species.

FIGURE 4: DOCUMENTED SPECIAL-STATUS SPECIES
Fingerman Property, Calistoga, California

THIS MAP REMOVED TO PROTECT THE LOCATIONS OF SENSITIVE SPECIES, PER:

CNDDB LICENSE AGREEMENT
https://nrm.dfg.ca.gov/FileHandler.ashx?DocumentID=75516&inline

CNDDB DATA USE GUIDELINES
https://nrm.dfg.ca.gov/FileHandler.ashx?DocumentID=27285&inline

Table 1. Special-Status Vascular Plant Taxa Documented in the Vicinity of the Fingerman Property, Napa County, California. Compiled from 9-Quad Search (Calistoga Quadrangle) by Vollmar Natural Lands Consulting, September 2016.

Name - *Scientific* Common (Family)	Status*	Life Form	Habitat, Elevation Range, and Bloom Time	Potential for Occurrence on the Project Site
Allium peninsulare var. *franciscanum* Franciscan onion (Alliaceae)	1B.2,-,-	perennial bulbiferous herb	Cismontane woodland, Valley and foothill grassland/clay, volcanic, often serpentinite 52-305 meters; (Apr),May-Jun	Not expected: project site is above elevation range, and not documented in general vicinity.
Alopecurus aequalis var. *sonomensis* Sonoma alopecurus (Poaceae)	1B.1,-,E	perennial herb	Marshes and swamps(freshwater), Riparian scrub 5-365 meters; May-Jul	**Potential**: suitable habitat occurs on the project site, but not documented in general vicinity.
Amorpha californica var. *napensis* Napa false indigo (Fabaceae)	1B.2,-,-	perennial deciduous shrub	Broadleafed upland forest(openings), Chaparral, Cismontane woodland 120-2000 meters; Apr-Jul	**Potential**: suitable habitat occurs on the project site, and documented in general vicinity. Shrubs on the site match vegetative characteristics of species.
Amsinckia lunaris bent-flowered fiddleneck (Boraginaceae)	1B.2,-,-	annual herb	Coastal bluff scrub, Cismontane woodland, Valley and foothill grassland 3-500 meters; Mar-Jun	**Potential**: suitable habitat occurs on the project site, but not documented in general vicinity.
Arctostaphylos manzanita ssp. *elegans* Konocti manzanita (Ericaceae)	1B.3,-,-	perennial evergreen shrub	Chaparral, Cismontane woodland, Lower montane coniferous forest/volcanic 395-1615 meters; Jan-May(Jul),	**Potential**: suitable habitat occurs on the project site, but not documented in general vicinity.
Arctostaphylos stanfordiana ssp. *decumbens* Rincon Ridge manzanita (Ericaceae)	1B.1,-,-	perennial evergreen shrub	Chaparral(rhyolitic), Cismontane woodland 75-370 meters; Feb-Apr(May),	**Potential**: suitable habitat occurs on the project site, and documented in general vicinity.
Astragalus claranus Clara Hunt's milk-vetch (Fabaceae)	1B.1,T,E	annual herb	Chaparral(openings), Cismontane woodland, Valley and foothill grassland/serpentinite or volcanic, rocky, clay 75-275 meters; Mar-May	Not expected: project site is above elevation range.

Name - *Scientific* Common (Family)	Status*	Life Form	Habitat, Elevation Range, and Bloom Time	Potential for Occurrence on the Project Site
Astragalus rattanii var. *jepsonianus* Jepson's milk-vetch (Fabaceae)	1B.2,-,-	annual herb	Chaparral, Cismontane woodland, Valley and foothill grassland/often serpentinite 295-700 meters; Mar-Jun	**Potential**: suitable habitat occurs on the project site, but not documented in general vicinity.
Balsamorhiza macrolepis big-scale balsamroot (Asteraceae)	1B.2,-,-	perennial herb	Chaparral, Cismontane woodland, Valley and foothill grassland/sometimes serpentinite 90-1555 meters; Mar-Jun	**Potential**: suitable habitat occurs on the project site, but not documented in general vicinity.
Blennosperma bakeri Sonoma sunshine (Asteraceae)	1B.1,E,E	annual herb	Valley and foothill grassland(mesic), Vernal pools 10-110 meters; Mar-May	Not expected: grassland habitat on the project site is markedly disturbed and site is above elevation range.
Brodiaea leptandra narrow-anthered brodiaea (Themidaceae)	1B.2,-,-	perennial bulbiferous herb	Broadleafed upland forest, Chaparral, Cismontane woodland, Lower montane coniferous forest, Valley and foothill grassland/volcanic 110-915 meters; May-Jul	**Potential**: suitable habitat occurs on the project site, and documented in general vicinity.
Ceanothus confusus Rincon Ridge ceanothus (Rhamnaceae)	1B.1,-,-	perennial evergreen shrub	Closed-cone coniferous forest, Chaparral, Cismontane woodland/volcanic or serpentinite 75-1065 meters; Feb-Jun	**Potential**: suitable habitat occurs on the project site, and documented in general vicinity.
Cea*nothus divergens* Calistoga ceanothus (Rhamnaceae)	1B.2,-,-	perennial evergreen shrub	Chaparral(serpentinite or volcanic, rocky) 170-950 meters; Feb-Apr	**Potential**: suitable habitat occurs on the project site, and documented in general vicinity. Shrubs on the site match vegetative characteristics of species.
Ceanothus purpureus holly-leaved ceanothus (Rhamnaceae)	1B.2,-,-	perennial evergreen shrub	Chaparral, Cismontane woodland/volcanic, rocky 120-640 meters; Feb-Jun	**Potential**: suitable habitat occurs on the project site, and documented in general vicinity.
Ceanothus sonomensis Sonoma ceanothus (Rhamnaceae)	1B.2,-,-	perennial evergreen shrub	Chaparral(sandy, serpentinite or volcanic) 215-800 meters; Feb-Apr	**Potential**: suitable habitat occurs on the project site, and documented in general vicinity.

Name - *Scientific* Common (Family)	Status*	Life Form	Habitat, Elevation Range, and Bloom Time	Potential for Occurrence on the Project Site
Centromadia parryi ssp. *parryi* pappose tarplant (Asteraceae)	1B.2,-,-	annual herb	Chaparral, Coastal prairie, Meadows and seeps, Marshes and swamps(coastal salt), Valley and foothill grassland(vernally mesic)/often alkaline 0-420 meters; May-Nov	Not expected: suitable habitat on the project site is marginal. No alkaline soils.
Cryptantha dissita serpentine cryptantha (Boraginaceae)	1B.2,-,-	annual herb	Chaparral(serpentinite) 395-580 meters; Apr-Jun	Not expected: no suitable habitat on the project site. No serpentinite.
Downingia pusilla dwarf downingia (Campanulaceae)	2B.2,-,-	annual herb	Valley and foothill grassland(mesic), Vernal pools 1-445 meters; Mar-May	Not expected: suitable habitat on the project site is markedly disturbed.
Erigeron biolettii streamside daisy (Asteraceae)	3,-,-	perennial herb	Broadleafed upland forest, Cismontane woodland, North Coast coniferous forest/rocky, mesic 30-1100 meters; Jun-Oct	**Potential**: suitable habitat occurs on the project site, but is marginal (not mesic rock or large outcrops). Documented in general vicinity.
Erigeron greenei Greene's narrow-leaved daisy (Asteraceae)	1B.2,-,-	perennial herb	Chaparral(serpentinite or volcanic) 80-1005 meters; May-Sep	**Potential**: suitable habitat occurs on the project site, but not documented in general vicinity.
Eriogonum nervulosum Snow Mountain buckwheat (Polygonaceae)	1B.2,-,-	perennial rhizomatous herb	Chaparral(serpentinite) 300-2105 meters; Jun-Sep	Not expected: no suitable habitat on the project site. No serpentinite.
Eryngium constancei Loch Lomond button-celery (Apiaceae)	1B.1,E,E	annual/perennial herb	Vernal pools 460-855 meters; Apr-Jun	Not expected: marginal suitable habitat on the project site. No vernal pools.
Fritillaria liliacea fragrant fritillary (Liliaceae)	1B.2,-,-	perennial bulbiferous herb	Cismontane woodland, Coastal prairie, Coastal scrub, Valley and foothill grassland/Often serpentinite 3-410 meters; Feb-Apr	Not expected: marginal suitable habitat on the project site. No heavy soils or serpentinite.

Name - *Scientific* Common (Family)	Status*	Life Form	Habitat, Elevation Range, and Bloom Time	Potential for Occurrence on the Project Site
Fritillaria pluriflora adobe-lily (Liliaceae)	1B.2,-,-	perennial bulbiferous herb	Chaparral, Cismontane woodland, Valley and foothill grassland/often adobe 60-705 meters; Feb-Apr	Not expected: marginal suitable habitat on the project site. No adobe or serpentinite.
Gratiola heterosepala Boggs Lake hedge-hyssop (Plantaginaceae)	1B.2,E,-	annual herb	Marshes and swamps(lake margins), Vernal pools/clay 10-2375 meters; Apr-Aug	Not expected: marginal suitable habitat on the project site. No vernal pools and not documented in general vicinity.
Harmonia hallii Hall's harmonia (Asteraceae)	1B.2,-,-	annual herb	Chaparral(serpentinite) 500-975 meters; Apr-Jun	Not expected: no suitable habitat on the project site. No serpentinite.
Hemizonia congesta ssp. *congesta* congested-headed hayfield tarplant (Asteraceae)	1B.2,-,-	annual herb	Valley and foothill grassland/sometimes roadsides 20-560 meters; Apr-Nov	**Potential**: suitable habitat occurs on the project site, but not documented in general vicinity.
Hesperolinon bicarpellatum two-carpellate western flax (Linaceae)	1B.2,-,-	annual herb	Chaparral(serpentinite) 60-1005 meters; May-Jul	Not expected: no suitable habitat on the project site. No serpentinite.
Hesperolinon sharsmithiae Sharsmith's western flax (Linaceae)	1B.2,-,-	annual herb	Chaparral/serpentinite 270-300 meters; May-Jul	Not expected: no suitable habitat on the project site. No serpentinite and site is above elevation range.
Lasthenia burkei Burke's goldfields (Asteraceae)	1B.1,E,E	annual herb	Meadows and seeps(mesic), Vernal pools 15-600 meters; Apr-Jun	Not expected: no suitable habitat on the project site. No meadows, seeps, or vernal pools.
Lasthenia conjugens Contra Costa goldfields (Asteraceae)	1B.1,-,E	annual herb	Cismontane woodland, Playas(alkaline), Valley and foothill grassland, Vernal pools/mesic 0-470 meters; Mar-Jun	Not expected: marginal suitable habitat on the project site. No vernal pools, mesic woodland, or alkaline soils. Onsite grasslands are markedly disturbed.

Name - *Scientific* Common (Family)	Status*	Life Form	Habitat, Elevation Range, and Bloom Time	Potential for Occurrence on the Project Site
Layia septentrionalis Colusa layia (Asteraceae)	1B.2,-,-	annual herb	Chaparral, Cismontane woodland, Valley and foothill grassland/sandy, serpentinite 100-1095 meters; Apr-May	Not expected: no suitable habitat on the project site. No serpentinite.
Leptosiphon jepsonii Jepson's leptosiphon (Polemoniaceae)	1B.2,-,-	annual herb	Chaparral, Cismontane woodland/usually volcanic 100-500 meters; Mar-May	**Potential**: suitable habitat occurs on the project site, and documented in general vicinity.
Lessingia hololeuca woolly-headed lessingia (Asteraceae)	3,-,-	annual herb	Broadleafed upland forest, Coastal scrub, Lower montane coniferous forest, Valley and foothill grassland/clay, serpentinite 15-305 meters; Jun-Oct	Not expected: no suitable habitat on the project site. No serpentinite and site is above elevation range.
Limnanthes vinculans Sebastopol meadowfoam (Limnanthaceae)	1B.1,E,E	annual herb	Meadows and seeps, Valley and foothill grassland, Vernal pools/vernally mesic 15-305 meters; Apr-May	Not expected: no suitable habitat on the project site. Onsite grasslands are markedly disturbed, and site is above elevation range.
Lupinus sericatus Cobb Mountain lupine (Fabaceae)	1B.2,-,-	perennial herb	Broadleafed upland forest, Chaparral, Cismontane woodland, Lower montane coniferous forest 275-1525 meters; Mar-Jun	**Potential**: suitable habitat occurs on the project site, and documented in general vicinity.
Micropus amphibolus Mt. Diablo cottonweed (Asteraceae)	3.2,-,-	annual herb	Broadleafed upland forest, Chaparral, Cismontane woodland, Valley and foothill grassland/rocky 45-825 meters; Mar-May	**Potential**: suitable habitat occurs on the project site, and documented in general vicinity.
Navarretia leucocephala ssp. *bakeri* Baker's navarretia (Polemoniaceae)	1B.1,-,-	annual herb	Cismontane woodland, Lower montane coniferous forest, Meadows and seeps, Valley and foothill grassland, Vernal pools/Mesic 5-1740 meters; Apr-Jul	Not expected: no suitable habitat on the project site. No meadows, seeps, vernal pools, or mesic woodland/forest habitats. Onsite grasslands are markedly disturbed.
Navarretia leucocephala ssp. *plieantha* many-flowered navarretia (Polemoniaceae)	1B.2,E,E	annual herb	Vernal pools(volcanic ash flow) 30-950 meters; May-Jun	Not expected: no suitable habitat on the project site. No vernal pools.

Name - *Scientific* Common (Family)	Status*	Life Form	Habitat, Elevation Range, and Bloom Time	Potential for Occurrence on the Project Site
Navarretia myersii ssp. *deminuta* small pincushion navarretia (Polemoniaceae)	1B.1,-,-	annual herb	Vernal pools(clay loam) 355-355 meters; Apr-May	Not expected: no suitable habitat on the project site. No vernal pools.
Navarretia paradoxinota Porter's navarretia (Polemoniaceae)	1B.3,-,-	annual herb	Meadows and seeps/Serpentinite, openings, vernally mesic, often drainages 165-840 meters; May-Jun(Jul),	Not expected: no suitable habitat on the project site. No meadows, seeps, or serpentinite.
Navarretia rosulata Marin County navarretia (Polemoniaceae)	1B.2,-,-	annual herb	Closed-cone coniferous forest, Chaparral/serpentinite, rocky 200-635 meters; May-Jul	Not expected: no suitable habitat on the project site. No serpentinite.
Penstemon newberryi var. *sonomensis* Sonoma beardtongue (Plantaginaceae)	1B.3,-,-	perennial herb	Chaparral(rocky) 700-1370 meters; Apr-Aug	Not expected: project site is below elevation range.
Plagiobothrys strictus Calistoga popcornflower (Boraginaceae)	1B.1,T,E	annual herb	Meadows and seeps, Valley and foothill grassland, Vernal pools/alkaline areas near thermal springs 90-160 meters; Mar-Jun	Not expected: no suitable habitat on the project site. No meadows, seeps, vernal pools, or alkali grasslands. Site is above elevation range.
Poa napensis Napa blue grass (Poaceae)	1B.1,E,E	perennial herb	Meadows and seeps, Valley and foothill grassland/alkaline, near thermal springs 100-200 meters; May-Aug	Not expected: no suitable habitat on the project site. No alkaline thermal springs. Site is above elevation range.
Puccinellia simplex California alkali grass (Poaceae)	1B.2,-,-	annual herb	Chenopod scrub, Meadows and seeps, Valley and foothill grassland, Vernal pools/Alkaline, vernally mesic; sinks, flats, and lake margins 2-930 meters; Mar-May	Not expected: no suitable habitat on the project site. No alkaline habitats.
Sidalcea hickmanii ssp. *napensis* Napa checkerbloom (Malvaceae)	1B.1,-,-	perennial herb	Chaparral/rhyolitic 415-610 meters; Apr-Jun	Not expected: project site is below elevation range.

Name - *Scientific* Common (Family)	Status*	Life Form	Habitat, Elevation Range, and Bloom Time	Potential for Occurrence on the Project Site
Sidalcea oregana ssp. *hydrophila* marsh checkerbloom (Malvaceae)	1B.2,-,-	perennial herb	Meadows and seeps, Riparian forest/mesic 1100-2300 meters; (Jun),Jul-Aug	Not expected: no suitable habitat on the project site. No meadows, seeps, or riparian forest. Site is below elevation range.

Notes
Shaded entries are taxa with the highest potential to occur on the project site, due to the quality of onsite habitat and proximity of documented populations (within approximately 5 air miles).
Bloom Periods in Parentheses indicate that the species *occasionally* blooms during that period.

***Rarity Status Codes (order is CNPS, State, Federal)**:
E = Federally or State listed as Endangered
T = Federally or State listed as Threatened
R = State listed as Rare
California Rare Plant Rank (CRPR) Codes (table excludes List 4 plants)
1B.1 = CRPR List 1B.1: Plants rare, threatened or endangered in California and elsewhere; plant seriously threatened in California.
1B.2 = CRPR List 1B.2: Plants rare, threatened or endangered in California and elsewhere; plant fairly threatened in California.
1B.3 = CRPR List 1B.3: Plants rare, threatened or endangered in California and elsewhere; plant not very threatened in California.
3 = CRPR List 3: Plants in California which need more information-a review list.

Habitat Modifiers
"(descriptor)" pertains only to the habitat type immediately preceding
"/ descriptor" pertains to *all* habitat

Recommended Measures

The following measures are recommended to address potential impacts to special-status plant species:

BIO-1A: Prior to construction, appropriately timed surveys should be conducted to determine if special-status plant species are present in the disturbance areas. The surveys shall be conducted by a qualified botanist and follow accepted survey protocols. If no special-status plant species are identified during the survey, then no further action is required except to place fencing around the disturbance areas to keep all construction activities within areas determined to not support special-status plants and to prevent incidental disturbance. If special-status plant species are found in the disturbance areas, then **BIO-1B** should be implemented.

BIO-1B: If special-status plant species are found in the disturbance area and cannot be avoided, then a species-specific mitigation plan shall be prepared and implemented. The plan would specify, at a minimum, the following: (1) the location of the mitigation site(s); (2) procedures for procuring plants, such as transplanting or collecting seed from plants to be impacted; (3) procedures for propagating collected seed; (4) the quantity and species of plants to be planted or transplanted; (4) planting procedures, including the use of soil preparation and irrigation; (5) a schedule and action plan to maintain and monitor the mitigation site for a minimum 5 year period; (6) reporting procedures, including the contents of annual progress reports; (7) a list of criteria (e.g., growth, plant cover, survivorship) by which to measure success of the plantings; and (8) contingency measures to implement if the plantings are not successful.

If the presence of Calistoga ceanothus is confirmed on the project site during the implementation of BIO-1A, then the species specific mitigation plan shall also address potential impacts that could occur to the species from subterranean excavation associated with construction of the wine cave tunnels. At a minimum, the mitigation plan will include the following: (1) a schedule and action plan to monitor the plants for a minimum 5 year period; (2) reporting procedures, including the contents of annual monitoring reports; (3) a list of criteria (e.g., growth, plant cover, survivorship) by which to determine if adverse effects to Calistoga ceanothus occur that can be attributed to subterranean excavation; and (4) contingency measures to implement if adverse effects to

Calistoga ceanothus are observed that can be attributed to subterranean excavation.

It should be noted that the feasibility of successfully mitigating potential impacts to special-status plants is dependent on multiple factors, including but not limited to (1) what species are found during the required survey, the rarity of the plants, and feasibility of avoidance of any of these plants; (2) the feasibility of successfully transplanting or growing from seed the affected plants that cannot be avoided; (3) the availability of a suitable mitigation site to establish a new population; (4) the availability of a mitigation site in which existing plant populations can be protected or enhanced; and/or (5) the availability of other mitigation options.

(ii) Special-Status Wildlife Species

For the purposes of this report, special-status wildlife species include those that are state or federally listed as Threatened or Endangered, proposed for listing as Threatened or Endangered, designated as state or federal candidates for listing, a federal Bird of Conservation Concern, a state Species of Special Concern, a state Fully Protected Animal, or included on the CDFW Special Animals List.

Figures 4 shows the location of special-status wildlife species documented by the CNDDB in the project area (i.e., within approximately 3 miles of the project site).[2] The potential of these species to occur on or near the project site is discussed below.

FEDERALLLY AND STATE LISTED SPECIES KNOWN FROM PROJECT REGION

One federally and state listed species, northern spotted owl (*Strix occidentalis caurina*), is known to occur in areas near the project site. The potential occurrence of northern spotted owl is addressed in a separate report. Other federally and/or state listed wildlife species known from the project region include California red-legged frog (*Rana draytonii*), California freshwater shrimp (*Syncaris pacifica*), Delta smelt (*Hypomesus transpacificus*), and steelhead (*Oncorhynchus mykiss*); these species are not expected to occur on the project site or in areas that could be indirectly affected by the proposed project due to the absence of suitable habitat and other factors discussed below.

California red-legged frog (*Rana draytonii*) is a federally Threatened species and a California Species of Special Concern. The species occurs from sea level to elevations of 1,500 meters (5,200 feet). Breeding occurs in streams, deep pools, backwaters within streams and creeks, ponds, marshes, sag ponds, dune ponds, lagoons, and stock ponds. Breeding adults are often

associated with deep (greater than 0.7 meter [2 feet]) still or slow moving water and dense, shrubby riparian or emergent vegetation (Hayes and Jennings 1988), but frogs have been observed in shallow sections of streams and ponds that are devoid of vegetative cover. The species also utilizes non-aquatic habitats for refuge and dispersal. The species is known to rest and feed in riparian vegetation and it is believed that the moisture and cover of the riparian zone provides foraging habitat and facilitates dispersal. The species has also been documented dispersing through areas with sparse vegetative cover and dispersal patterns are considered to be dependent on habitat availability and environmental conditions (N. Scott and G. Rathbun *in lit.* 1998).

Based on the CNDDB, this species is not known from the project region and the closest documented occurrence is approximately 10 miles to the northeast. While the onsite pond provides aquatic habitat, it provides marginal habitat for California red-legged frog. Dozens of bullfrogs (*Lithobates catesbeiana*) were observed in the pond during the site survey, but no other frog species were observed. Given the high number of bullfrogs present (a predator of California red-legged frogs), and the limited amount of emergent vegetation (cover habitat), habitat quality for red-legged frogs is compromised. Therefore, due to the marginal habitat quality, and that the species is not known from within 10 miles of the project site, California red-legged frogs are unlikely to occur on the project site.

Townsend's western big-eared bat (*Corynorhinus townsendii townsendii*) is a state Endangered species. This species primarily roosts in caves, mines, tunnels, and sometimes in buildings, bridges, and other human made structures. Suitable roosting habitat for this species does not occur on the project site. While there is a barn/storage structure on the site, the structure is constructed in a manner where there are large openings that allow sunlight to enter the structure (see Appendix C, Photo 7). Given these large openings and sun exposure inside of the structure, the structure does not provide suitable day, maternity, or hibernation roosting habitat for Townsend's western big-eared bat or any other bat species.

California freshwater shrimp (*Syncaris pacifica*) is a state and federally Endangered species. The species is found along the edges of stream pools, in areas away from the main current, where there are often undercut banks, and exposed riparian tree roots. Suitable habitat for this species is not present on or adjacent to the project site due to the absence of streams. Therefore, California freshwater shrimp is not expected to occur on the project site.

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[2] Figure 4 does not include CNDDB records of northern spotted owl documented in the project area because the potential occurrence of northern spotted owl is addressed in a separate report.

Delta smelt (*Hypomesus transpaficus*) is a state Endangered and federally Threatened species. This species occurs in the Sacramento-San Joaquin estuary, lower Sacramento and San Joaquin Rivers, and San Pablo Bay. It primarily occurs where fresh and brackish water mix in the salinity range of 2–7 parts per thousand (Moyle 2002). Suitable habitat for this species is not present on or adjacent to the project site due to the absence of streams. Therefore, Delta smelt is not expected to occur on the project site.

Steelhead (*Oncorhynchus mykiss*), Central California Coast ESU, is a federally Threatened species. Steelhead are the anadromous form of *O. mykiss*. *O. mykiss* have a highly flexible life history and may follow a variety of life-history patterns including freshwater residents (non-migratory) at one extreme and individuals that migrate to the open ocean (anadromous) at another extreme. Intermediate life-history patterns include fish that migrate within the stream (potamodromous), fish that migrate only as far as estuarine habitat, and fish that migrate to near-shore ocean areas. California winter steelhead enter coastal streams during December-March, and summer steelhead seem to enter streams as flows taper off in spring and spawn the following winter (Moyle 2002). The female digs a redd in the coarse gravel of the tail of a pool or in a riffle. After spawning, spent steelhead often move gradually downstream and occupy pools for periods of time during the downstream migration (Moyle 2002). Juveniles may occupy riffles, runs, and pools. Suitable habitat for this species is not present on or adjacent to the project site due to the absence of streams. Therefore, steelhead is not expected to occur on the project site.

OTHER SPECIAL-STATUS WILDLIFE KNOWN FROM PROJECT REGION

Potentially Occurring on the Site

Special-Status and other Nesting Birds.

Sharp-shinned hawk *(Accipiter striatus*) has been documented nesting in surrounding areas (**Figure 4**) and could nest in the forest habitats bordering the project site.[3] Similarly, Cooper's hawk (*A. cooperi*) could also nest in the forest habitats bordering the project site.[4] The forest and chaparral habitats bordering the site, as well as the onsite habitats (emergent wetland, chaparral) provide nesting habitat for numerous other bird species, such as great horned owl (*Bubo virginianus*), Bell's sparrow (*Artemisiospiza belli*), Nuttall's woodpecker (*Picoides nuttallii*), and olive-sided flycatch (*Contopus cooperi*). It should be noted that the active nests of

[3] Sharp-shinned hawk is included on the CDFW Special Animal List (2015) but does not have any other official sensitivity status.

[4] Cooper's hawk is included on the CDFW Special Animal List (2015) but does not have any other official sensitivity status.

all raptor species and most common bird species are protected by the Migratory Bird Treaty Act and the California Fish and Game Code. Therefore, construction activities (including direct habitat disturbance and construction-related noise) has the potential to result in the loss or disturbance of an active nest of a special-status or otherwise protected bird nest.

Recommended Avoidance Measures

BIO-2: If construction activities would commence anytime during the nesting/breeding season of native bird species potentially nesting on the site (typically February through August in the project region), a pre-construction survey for nesting birds should be conducted by a qualified biologist within one week of the commencement of construction activities.

If active nests are found in areas that could be directly affected or are within 300 feet of construction a qualified biologist should determine whether or not construction activities may impact the active nest or disrupt reproductive behavior. If it is determined that construction would not affect an active nest or disrupt reproductive behavior, construction may proceed. If it is determined that construction could affect an active nest or reproductive behavior, a no-disturbance buffer zone should be created around active nests during the breeding season or until a qualified biologist determines that all young have fledged. The size of the buffer zones and types of construction activities restricted within them should be determined by taking into account factors such as the following:

- Noise and human disturbance levels at the construction site at the time of the survey and the noise and disturbance expected during the construction activity;
- Distance and amount of vegetation or other screening between the construction site and the nest; and
- Sensitivity of individual nesting species and behaviors of the nesting birds.

Western pond turtle (*Actinemys marmorata*) is a California Species of Special Concern. This turtle primarily inhabits aquatic habitats, including ponds, slow moving streams, lakes, marshes, and canals. The species frequently basks on logs or other objects out of the water. Western pond turtles also require upland oviposition (i.e., egg laying) sites in the vicinity (typically within 650

feet, but as far as 1,300 feet) of the aquatic site. Mating typically occurs in late April or early May and most oviposition occurs during May and June, although some individuals may deposit eggs as early as late April and as late as early August (Rathbun et al. 1993). Based on the CNDDB, the closest documented occurrence of western pond turtle is from the Napa River, approximately 2 miles north of the project site. No turtles of any species were observed during the survey of the pond. While no turtles were observed, given the presence of suitable habitat, known occurrences in the area, and that turtles can be difficult to observe, it is possible that western pond turtles occur on the site. Therefore, proposed construction activities could result in the loss or harm of western pond turtle.

Recommended Avoidance Measures

BIO-3: A preconstruction survey for western pond turtle should occur prior to beginning work, and work should only occur in areas that have been surveyed. This would include a focused survey for adult turtles and nest site searches. Any adults found within the work area should be relocated to suitable off-site habitat. Nest sites discovered during the preconstruction survey or anytime during construction should be avoided until vacated, as determined by a qualified biologist. On-going monitoring during construction should occur to ensure turtles have not moved back into the area and they are not being impacted by activities. If relocation of a western pond turtle is required, the relocation site must be approved by the CDFW and the biologist relocating the turtle must have approval from the CDFW.

Not Expected to Occur on the Project Site

Pallid bat (*Antrozous pallidus*) is a California Species of Special Concern. This species prefers rocky open dry lands with rocky areas for roosting, but also occurs in woodlands. Suitable roosting habitat for this species does not occur on the project site. While there is a barn/storage structure on the site, the structure is constructed in a manner where there are large openings that allow sunlight to enter the structure (see Appendix C, Photo 7). Given these large openings and sun exposure inside of the structure, the structure does not provide suitable day, maternity, or hibernation roosting habitat for pallid bat or any other bat species.

Foothill yellow-legged frog (*Rany boylii*) is a California Species of Special Concern. The species is characteristically found close to water in association with perennial streams and ephemeral creeks that retain perennial pools through the end of summer. Adults preferentially utilize shallow edgewater areas with low water velocities for breeding and egg laying, usually

characterized by gravel, cobble, and boulder substrate. Juvenile and non-breeding adult frogs may be found adjacent to riffles, cascades, main channel pools, and plunge-pools that provide escape cover. Suitable habitat for this species is not present on or adjacent to the project site due to the absence of streams. Therefore, foothill yellow-legged frog is not expected to occur on the project site.

7.0 JURISDICTIONAL RESOURCES

Wetlands, creeks, streams, and permanent and intermittent drainages are subject to the jurisdiction of the U.S. Army Corps of Engineers (ACOE) under Section 404 of the Federal Clean Water Act (CWA). The California Department of Fish and Wildlife (CDFW) also generally has jurisdiction over these resources, together with other aquatic features that provide an existing fish and wildlife resource pursuant to Sections 1602-1603 of the California Fish and Game Code. Creeks and wetlands are also subject to regulation of the Regional Water Quality Control Board (RWQCB) under both the federal CWA and the State of California's Porter-Cologne Water Quality Control Act (California Water Code, Division 7).

A focus of the field survey was to identify features potentially under the jurisdiction of the ACOE, CDFW, and RWQCB. The onsite pond is expected to be under the jurisdiction of the RWQCB and the CDFW. The associated wetlands (around the outer margins of the pond) may also be under the jurisdiction of the RWQCB. It is not expected that the pond and associated wetlands are under the ACOE jurisdiction because there is no hydrologic connection of the pond to Waters of the U.S. A separate Jurisdictional Delineation Report is being prepared by VNLC that describes the pond and associated wetlands in further detail, as well as the expected jurisdictional status of these features; the findings of the Jurisdictional Delineation Report will be subject to verification by the regulatory agencies. The proposed project includes the restoration of the existing pond, which will involve temporary disturbance of the pond and associated wetlands. The existing pond will be drained and planting material on the pond bottom will be removed and stored and used as planting medium for pond restoration. The pond will be rough graded according to the landscape design and an artificial liner will be placed to stop pond leakage. Spoil material will be spread over the liner and the stored growing medium will be placed and augmented with compost and topsoil. Native grasses and forbs will be planted and kept sufficiently moist until the rainy season. The pond will be allowed to fill from rainfall and surface flow as it currently does. It is expected that wetlands will reform within the pond, and as currently occurs, that the extent of the wetlands will fluctuate with seasonal changes in water

levels in the pond. As the pond would be restored and wetlands would reestablish, there would not be a long-term loss of wetlands and waters.

Recommended Avoidance Measures

BIO-4 Prior to the commencement of construction activities, any required permits/certifications/agreements must be obtained from the regulatory agencies. All conditions of those permits/certifications/agreements would be fulfilled.

8.0 SENSITIVE PLANT COMMUNITIES

Sensitive plant communities are communities that are of limited distribution statewide or within a county or region and are often vulnerable to environmental effects of projects. These communities may or may not contain special-status species or their habitat. The Manual of California Vegetation (MCV) (Sawyer et al. 2009) indicates which natural communities are of special status given the current state of the California classification.

A focus of the field survey was to determine if sensitive plant communities occur on the project site. The MCV identifies "Stanford Manzanita Chaparral" as a "G3" and "S3" plant community. Communities listed with a "3" rarity code are considered uncommon to rare and thus may be considered special-status (the "G" indicates global rank and the "S" indicates state rank, in terms of rarity). There is no membership rule listed for this plant community, but given the high percent cover of Stanford's manzanita within mixed chaparral on the project site, the habitat would likely qualify, and therefore, may be considered a sensitive plant community.

"Redwood Forest" is also listed as a "G3" and "S3.2" plant community in the MCV. The membership rule listed for this habitat is >50% coast redwoods, and the onsite habitat encompasses a percent cover that approaches 50%; therefore, the onsite redwood forest may be considered a sensitive plant community.

Potential impacts to redwood forest would be restricted to the proposed driveway improvement component of the project and would be relatively minor. However, as currently proposed, impacts to onsite chaparral habitats would be larger. Construction of Portal #2 and Portal #3 will result in approximately 3,000 sf of ground disturbance in mixed chaparral habitat and all or portions of this habitat to be removed could be Stanford manzanita chaparral. Additionally, portions of the wine cave tunnels would be excavated beneath the mixed chaparral habitat, at distances of approximately 4 feet to 30 feet beneath the surface. The roots of chaparral associated plant species, such as ceanothus, can extend deep into ground. Therefore, it is

possible that subsurface excavation could damage the roots and compromise the health of plants that are part of the Stanford manzanita chaparral plant community.

Recommended Avoidance Measures

BIO-5A: Potential impacts to onsite Stanford manzanita chaparral should be minimized. To accomplish this, areas that may be considered Stanford manzanita chaparral should be mapped and the project plans should be revised, as practical, to avoid or minimize impacts these areas. If most Stanford manzanita chaparral habitat cannot be avoided, then a mitigation plan should be prepared and implemented. The plan should outline measures to protect and enhance (where possible) onsite or nearby Stanford manzanita chaparral habitats. At a minimum, the plan should include the following: (1) the location of the mitigation site(s); (2) procedures for protecting and enhancing Stanford manzanita habitat, (3) a schedule and action plan to maintain and monitor the mitigation site for a minimum 5 year period; (4) reporting procedures, including the contents of annual progress reports; (5) a list of criteria (e.g., growth, plant cover, survivorship) by which to measure success of the mitigation; and (6) contingency measures to implement if the mitigation efforts are not successful.

BIO-5B: Following construction of the wine cave, any Stanford manzanita chaparral that was mapped above the wine cave (as required by Measure BIO-5A) should be monitored for a minimum of five years to determine if plants may have been harmed by subterranean excavation. A monitoring plan shall be designed and implemented, which at a minimum will include the following: (1) a schedule and action plan to monitor the site for a minimum 5 year period; (2) reporting procedures, including the contents of annual monitoring reports; (3) a list of criteria (e.g., growth, plant cover, survivorship) by which to determine if adverse effects to Stanford manzanita chaparral occur that can be attributed to subterranean excavation; and (4) contingency measures to implement if adverse effects to Stanford manzanita chaparral are observed that can be attributed to subterranean excavation.

It should be noted that the feasibility of successfully mitigating potential impacts to this sensitive plant community is dependent on multiple factors, including but not limited to (1) the extent of impacts to onsite Stanford manzanita chaparral habitat; (2) the amount of onsite or nearby

Stanford manzanita habitats that can be protected and enhanced; and/or (3) the availability of other mitigation options.

9.0 WILDLIFE MOVEMENT CORRIDORS

Wildlife corridors are described as pathways or habitat linkages that connect discrete areas of natural open space otherwise separated or fragmented by topography, changes in vegetation, and other natural or manmade obstacles such as urbanization. The site is located in a sparsely developed area and is surrounded by large expanses of undeveloped land and some vineyards. The project site itself does not contain characteristics associated with regional wildlife movement corridors, such as a creek corridors or woodlands, but it is expected that a variety of wildlife species make local movements within and across the site. Given the extent of undeveloped land surrounding the project site (**Figures 2**), development of the proposed project would not be expected to substantially obstruct regional wildlife movement. Additionally, the onsite pond, which is likely used by a variety of wildlife species, would remain accessible to wildlife. Therefore, the proposed project would not substantially interfere with an established wildlife movement corridor.

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Appendix A – USFWS Species List

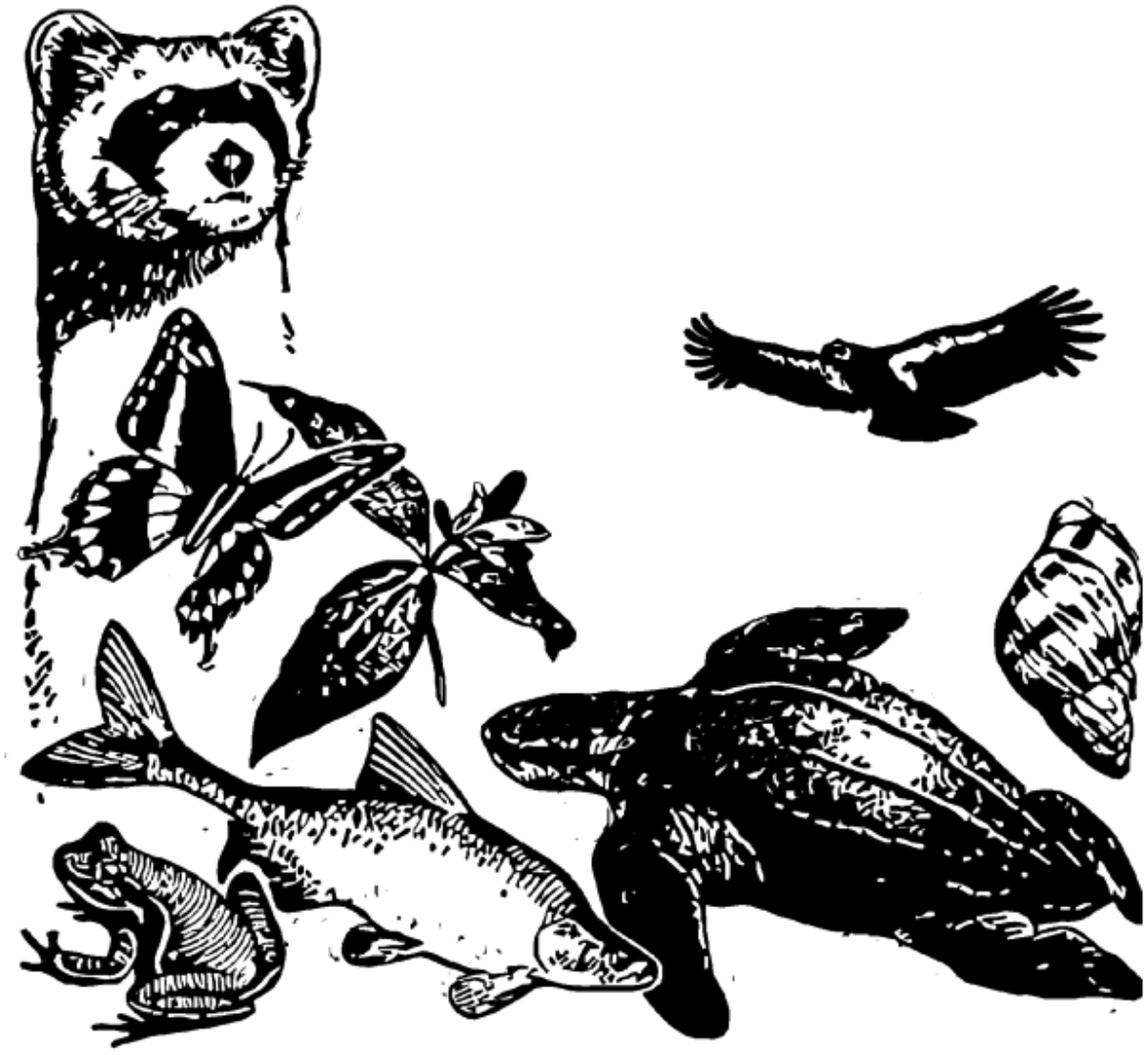
U.S. Fish & Wildlife Service

Winery Project - South Fork Diamond Mountain Rd

IPaC Trust Resources Report

Generated September 01, 2016 12:05 PM MDT, IPaC v3.0.8

This report is for informational purposes only and should not be used for planning or analyzing project level impacts. For project reviews that require U.S. Fish & Wildlife Service review or concurrence, please return to the IPaC website and request an official species list from the Regulatory Documents page.



IPaC - Information for Planning and Conservation (https://ecos.fws.gov/ipac/): A project planning tool to help streamline the U.S. Fish & Wildlife Service environmental review process.

Table of Contents

U.S. Fish & Wildlife Service

IPaC Trust Resources Report

NAME

Winery Project - South Fork Diamond Mountain Rd

LOCATION

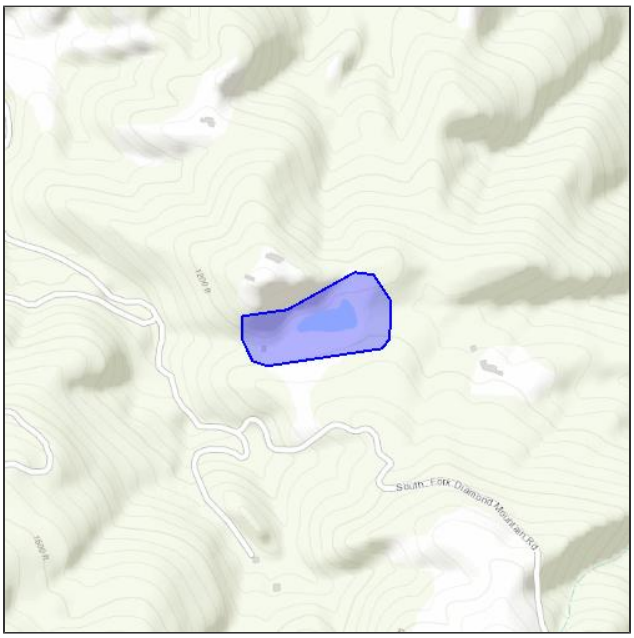
Napa County, California

DESCRIPTION

Potential Winery and Pond Restoration

IPAC LINK

https://ecos.fws.gov/ipac/project/VF2QX-XEKLV-FJNDR-NCR2J-UUHOA4



U.S. Fish & Wildlife Service Contact Information

Trust resources in this location are managed by:

Sacramento Fish And Wildlife Office
Federal Building
2800 Cottage Way, Room W-2605
Sacramento, CA 95825-1846
(916) 414-6600

Endangered Species

Proposed, candidate, threatened, and endangered species are managed by the Endangered Species Program of the U.S. Fish & Wildlife Service.

This USFWS trust resource report is for informational purposes only and should not be used for planning or analyzing project level impacts.

For project evaluations that require USFWS concurrence/review, please return to the IPaC website and request an official species list from the Regulatory Documents section.

Section 7 of the Endangered Species Act **requires** Federal agencies to "request of the Secretary information whether any species which is listed or proposed to be listed may be present in the area of such proposed action" for any project that is conducted, permitted, funded, or licensed by any Federal agency.

A letter from the local office and a species list which fulfills this requirement can only be obtained by requesting an official species list either from the Regulatory Documents section in IPaC or from the local field office directly.

The list of species below are those that may occur or could potentially be affected by activities in this location:

Amphibians

California Red-legged Frog Rana draytonii — Threatened

CRITICAL HABITAT

There is **final** critical habitat designated for this species.

http://ecos.fws.gov/tess_public/profile/speciesProfile.action?spcode=D02D

Birds

Northern Spotted Owl Strix occidentalis caurina — Threatened

CRITICAL HABITAT

There is **final** critical habitat designated for this species.

http://ecos.fws.gov/tess_public/profile/speciesProfile.action?spcode=B08B

Crustaceans

California Freshwater Shrimp Syncaris pacifica — Endangered

CRITICAL HABITAT

No critical habitat has been designated for this species.

http://ecos.fws.gov/tess_public/profile/speciesProfile.action?spcode=K01W

Fishes

Delta Smelt Hypomesus transpacificus — Threatened

CRITICAL HABITAT

There is **final** critical habitat designated for this species.

http://ecos.fws.gov/tess_public/profile/speciesProfile.action?spcode=E070

Steelhead Oncorhynchus (=Salmo) mykiss — Threatened

CRITICAL HABITAT

No critical habitat has been designated for this species.

http://ecos.fws.gov/tess_public/profile/speciesProfile.action?spcode=E08D

Flowering Plants

Burke's Goldfields Lasthenia burkei — Endangered

CRITICAL HABITAT

No critical habitat has been designated for this species.

http://ecos.fws.gov/tess_public/profile/speciesProfile.action?spcode=Q1XU

Calistoga Allocarya Plagiobothrys strictus — Endangered

CRITICAL HABITAT

No critical habitat has been designated for this species.

http://ecos.fws.gov/tess_public/profile/speciesProfile.action?spcode=Q1HV

Clara Hunt's Milk-vetch Astragalus clarianus — Endangered

CRITICAL HABITAT

No critical habitat has been designated for this species.

http://ecos.fws.gov/tess_public/profile/speciesProfile.action?spcode=Q05J

Loch Lomond Coyote Thistle Eryngium constancei — Endangered

CRITICAL HABITAT

No critical habitat has been designated for this species.

http://ecos.fws.gov/tess_public/profile/speciesProfile.action?spcode=Q29S

Napa Bluegrass Poa napensis — Endangered

CRITICAL HABITAT

No critical habitat has been designated for this species.

http://ecos.fws.gov/tess_public/profile/speciesProfile.action?spcode=Q1ID

Critical Habitats

There are no critical habitats in this location

Migratory Birds

Birds are protected by the Migratory Bird Treaty Act and the Bald and Golden Eagle Protection Act.

Any activity that results in the take of migratory birds or eagles is prohibited unless authorized by the U.S. Fish & Wildlife Service.[1] There are no provisions for allowing the take of migratory birds that are unintentionally killed or injured.

Any person or organization who plans or conducts activities that may result in the take of migratory birds is responsible for complying with the appropriate regulations and implementing appropriate conservation measures.

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1. 50 C.F.R. Sec. 10.12 and 16 U.S.C. Sec. 668(a)

Additional information can be found using the following links:

- Birds of Conservation Concern
  http://www.fws.gov/birds/management/managed-species/birds-of-conservation-concern.php
- Conservation measures for birds
  http://www.fws.gov/birds/management/project-assessment-tools-and-guidance/conservation-measures.php
- Year-round bird occurrence data
  http://www.birdscanada.org/birdmon/default/datasummaries.jsp

The following species of migratory birds could potentially be affected by activities in this location:

Bald Eagle Haliaeetus leucocephalus — Bird of conservation concern
Season: Year-round
http://ecos.fws.gov/tess_public/profile/speciesProfile.action?spcode=B008

Bell's Sparrow Amphispiza belli — Bird of conservation concern
Season: Year-round
http://ecos.fws.gov/tess_public/profile/speciesProfile.action?spcode=B0HE

Burrowing Owl Athene cunicularia — Bird of conservation concern
Season: Year-round
http://ecos.fws.gov/tess_public/profile/speciesProfile.action?spcode=B0NC

Fox Sparrow Passerella iliaca — Bird of conservation concern
Season: Wintering

Least Bittern Ixobrychus exilis
Season: Breeding
http://ecos.fws.gov/tess_public/profile/speciesProfile.action?spcode=B092

Lesser Yellowlegs Tringa flavipes — Bird of conservation concern
Season: Wintering
http://ecos.fws.gov/tess_public/profile/speciesProfile.action?spcode=B0MD

Lewis's Woodpecker Melanerpes lewis — Bird of conservation concern
Season: Wintering
http://ecos.fws.gov/tess_public/profile/speciesProfile.action?spcode=B0HQ

Long-billed Curlew Numenius americanus — Bird of conservation concern
Season: Wintering
http://ecos.fws.gov/tess_public/profile/speciesProfile.action?spcode=B06S

Nuttall's Woodpecker Picoides nuttallii — Bird of conservation concern
Season: Year-round
http://ecos.fws.gov/tess_public/profile/speciesProfile.action?spcode=B0HT

Oak Titmouse Baeolophus inornatus — Bird of conservation concern
Season: Year-round
http://ecos.fws.gov/tess_public/profile/speciesProfile.action?spcode=B0MJ

Olive-sided Flycatcher Contopus cooperi — Bird of conservation concern
Season: Breeding
http://ecos.fws.gov/tess_public/profile/speciesProfile.action?spcode=B0AN

Peregrine Falcon Falco peregrinus — Bird of conservation concern
Season: Year-round
http://ecos.fws.gov/tess_public/profile/speciesProfile.action?spcode=B0FU

Rufous-crowned Sparrow Aimophila ruficeps — Bird of conservation concern
Season: Year-round
http://ecos.fws.gov/tess_public/profile/speciesProfile.action?spcode=B0MX

Short-eared Owl Asio flammeus — Bird of conservation concern
Season: Wintering
http://ecos.fws.gov/tess_public/profile/speciesProfile.action?spcode=B0HD

Western Grebe aechmophorus occidentalis — Bird of conservation concern
Season: Year-round
http://ecos.fws.gov/tess_public/profile/speciesProfile.action?spcode=B0EA

Wildlife refuges and fish hatcheries

There are no refuges or fish hatcheries in this location

Wetlands in the National Wetlands Inventory

Impacts to NWI wetlands and other aquatic habitats may be subject to regulation under Section 404 of the Clean Water Act, or other State/Federal statutes.

For more information please contact the Regulatory Program of the local U.S. Army Corps of Engineers District.

DATA LIMITATIONS

The Service's objective of mapping wetlands and deepwater habitats is to produce reconnaissance level information on the location, type and size of these resources. The maps are prepared from the analysis of high altitude imagery. Wetlands are identified based on vegetation, visible hydrology and geography. A margin of error is inherent in the use of imagery; thus, detailed on-the-ground inspection of any particular site may result in revision of the wetland boundaries or classification established through image analysis.

The accuracy of image interpretation depends on the quality of the imagery, the experience of the image analysts, the amount and quality of the collateral data and the amount of ground truth verification work conducted. Metadata should be consulted to determine the date of the source imagery used and any mapping problems.

Wetlands or other mapped features may have changed since the date of the imagery or field work. There may be occasional differences in polygon boundaries or classifications between the information depicted on the map and the actual conditions on site.

DATA EXCLUSIONS

Certain wetland habitats are excluded from the National mapping program because of the limitations of aerial imagery as the primary data source used to detect wetlands. These habitats include seagrasses or submerged aquatic vegetation that are found in the intertidal and subtidal zones of estuaries and nearshore coastal waters. Some deepwater reef communities (coral or tuberficid worm reefs) have also been excluded from the inventory. These habitats, because of their depth, go undetected by aerial imagery.

DATA PRECAUTIONS

Federal, state, and local regulatory agencies with jurisdiction over wetlands may define and describe wetlands in a different manner than that used in this inventory. There is no attempt, in either the design or products of this inventory, to define the limits of proprietary jurisdiction of any Federal, state, or local government or to establish the geographical scope of the regulatory programs of government agencies. Persons intending to engage in activities involving modifications within or adjacent to wetland areas should seek the advice of appropriate federal, state, or local agencies concerning specified agency regulatory programs and proprietary jurisdictions that may affect such activities.

This location overlaps all or part of the following wetlands:

Freshwater Pond

PUBK

A full description for each wetland code can be found at the National Wetlands Inventory website: http://107.20.228.18/decoders/wetlands.aspx

Appendix B – Resumes

PACIFIC BIOLOGY

JOSHUA PHILLIPS, PRINCIPAL BIOLOGIST

EDUCATION

Master of Environmental Science and Management, Ecology Emphasis, U.C. Santa Barbara, 1999
Bachelor of Science in Environmental Biology and Management, U.C. Davis, 1995

EMPLOYMENT HISTORY

Pacific Biology	Principal Biologist	2006 - present
Impact Sciences, Inc.	Senior Biologist	2000 - 2006
East Bay Municipal Utilities District	Fisheries Technician	1999-2000
National Center for Ecological Analysis and Synthesis	Knowledge-Base Engineer	1998-1999

PROFESSIONAL SUMMARY

Mr. Phillips is the owner and Principal Biologist of Pacific Biology. His background combines a strong technical knowledge of California's plants and wildlife with a comprehensive understanding of the environmental planning process, including expertise in CEQA, the Endangered Species Act, the Clean Water Act, and the California Fish and Game Code. He has managed and participated in large-scale projects involving complex biological issues throughout northern and southern California.

Mr. Phillips has extensive experience analyzing the effects of development projects on biological resources and has prepared numerous biological resource chapters of EIRs and Initial Studies, Biological Assessments for Section 7 Consultations, Biological Constraints Evaluations, and Biological Resources Due Diligence Reports. He also has extensive experience conducting special-status species surveys, habitat evaluations, wetland delineations, vegetation mapping, mitigation design, biological permitting, and in the use and applications of GIS and GPS.

Mr. Phillips has expertise in locally occurring special-status species and has successfully overseen numerous Section 7 Consultations. Mr. Phillips has worked on projects for Caltrans, Alameda County Public Works Agency, Lawrence Berkeley National Laboratory, U.C. Santa Cruz, San Francisco Department of Public Works, Marin Municipal Water District, East Bay Municipal Utility District, Golden Gate Transportation District, and the cities of Hercules, Pinole, Richmond, San Pablo, Lafayette, King City, Fremont, Mountain View, Menlo Park, San Rafael, Santa Cruz, Scotts Valley, Capitola, San Jose, Watsonville, Los Angeles, and others.

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SELECTED EXPERIENCE

Caltrans Sonoma 116 Pavement Overlay Project, *Sonoma County*. The work was completed as part of a statewide on-call biological services contract with Caltrans. The Natural Environmental Study (NES) Report analyzed impacts to biological resources resulting from the proposed widening of SR 116 between Cotati and Sebastopol. Organized and participated in focused special-status plant surveys, California tiger salamander (CTS) larval surveys, a jurisdictional wetland delineation, and tree survey. Mapped all suitable CTS habitat within and bordering the project boundaries, prepared Biological Assessments (consistent with the federal Endangered Species Act) for CTS, steelhead, and California freshwater shrimp, and maintained a GIS database of all collected data. Coordinated with the USFWS regarding potential impacts to federally-listed species.

Water Storage Improvement Project (WSIP), *Marin County*. Mr. Phillips prepared the biological resources section of the ADEIR and oversaw the preparation of the supporting biological resources technical reports, including rare plant surveys, habitat mapping, bat surveys, fisheries evaluation, and a wetland delineation. A key issue was determining if construction related noise could disturb northern spotted owls nesting in nearby areas, and if this noise disturbance would be considered "take" under the Endangered Species Act (ESA). Mr. Phillips conducted a detailed evaluation of potential noise related impacts to northern spotted owl, using available guidance from the U.S. Fish and Wildlife Service, site specific noise measurements and modeling, and extensive nesting data collected by the MMWD.

Soulajule Spillway Repair Project, *Marin County*. Prepared a biological habitat evaluation report for the Soulajule Spillway Repair Project on behalf of the Marin Municipal Water District. The report was submitted to the Army Corps of Engineers (ACOE), California Department of Fish and Game (CDFG), U.S. Fish and Wildlife Service (USFWS), and National Marine Fisheries Service (NMFS) during the required biological permitting process (i.e., Section 7, 1600, 404). Based on the presence of suitable habitat and known occurrences in the project area, three federally-listed wildlife species were identified as having potential to occur on the project site, including California red-legged frog, Coho salmon, and steelhead. Other special-status wildlife species also potentially occurring included foothill-yellow legged frog, western pond turtle, Tomales roach, pallid bat, and yellow warbler. The report included avoidance measures to protect special-status species and other sensitive biological resources. The report was accepted by the agencies as written and all biological permits were issued for the project. Pacific Biology provided biological monitoring services during construction activities and conducted the required preconstruction clearance surveys.

Patterson Pass Road Safety Improvement Project, *Alameda County*. On behalf of the Alameda County Public Works Agency, Pacific Biology prepared the Natural Environmental Study (NES) and the Biological Assessment (BA). This was the first Public Works project subject to the East Alameda County Conservation Strategy, and the mitigation strategy was designed to comply with the requirements of that document. The USFWS agreed with the findings and mitigation presented in the BA and issued a Biological Opinion in accordance with the requirements of Section 7 of the federal ESA. An application for an Incidental Take Permit from the California Department of Fish and Wildlife (CDFW) was also prepared and that permit will be issued. Pacific Biology also oversaw the preparation of the Initial Study/Mitigated Negative Declaration and secured mitigation lands for the project. Key issues included potential impacts to California red-legged frog, California tiger salamander, San Joaquin kit fox, Alameda whipsnake, and burrowing owls.

Newhall Ranch Landmark Village and Mission Village Biota Reports, *Los Angeles County*. Served as the primary author of the Biota Reports for the Newhall Ranch Landmark Village and Mission Village projects. The Landmark Village and Mission Village project sites are 900 acres and 1,200 acres in size, respectively. Both project sites are located within Significant Ecological Area (SEA) 23, which was identified by the Los Angeles Planning Department in consideration of the biological resource values associated with the Santa Clara River. The reports were prepared pursuant to the requirements of the Los Angeles County Significant

Ecological Area Technical Advisory Committee (SEATAC) and analyzed potential project-related impacts to state and federally-listed plant and wildlife species (*i.e.,* San Fernando spineflower, arroyo toad, unarmored threespine stickleback, least Bell's vireo, southwestern willow flycatcher), other plant and wildlife species considered to be of special-status under CEQA, jurisdictional resources and sensitive habitats, wildlife movement corridors, and the overall biological functions and values of the Santa Clara River and associated riparian habitats. Attended SEATAC hearings for both projects and prepared responses to comments received on the documents.

Sun City Tehama Specific Plan EIR, *Tehama County*. Prepared the biological resources section of the EIR. The 3,474-acre project site contains large expanses of grassland and blue oak woodland habitat. Focused surveys were conducted for special-status plant species, vernal pool fairy/tadpole shrimp, California red-legged frog, western spadefoot, western pond turtle, burrowing owl, and valley elderberry longhorn beetle. The results of these surveys, as well as the results of a jurisdictional delineation and a fisheries and aquatic resources evaluation, were incorporated into the biological resources section of the EIR. Developed mitigation measures to address project impacts.

Patterson Ranch Specific Plan EIR, *Alameda County*. The 400-acre project site is located in the City of Fremont. Prepared the biological resources section of the EIR and conducted the associated biological surveys, including protocol surveys for California red-legged frog and burrowing owl. Worked closely with the City of Fremont in developing mitigation measures that achieved the goals of the project while protecting sensitive biological resources within an open space area. Responses were prepared to all public and agency comments and the EIR was approved in 2010.

Mission Creek Restoration Project, *Alameda County*. On behalf of the Alameda County Flood Control and Water Conservation District, Pacific Biology prepared the BA for the project. Pacific Biology also oversaw the preparation of the wetland delineation, wetland mitigation and monitoring plan (MMP), wetland permitting (i.e., Section 404, 401, 1600), and Initial Study/Negative Declaration. Key issues included potential impacts to California red-legged frog

Redwood City Ferry Terminal Project, *San Mateo County*. The project includes the construction of a ferry terminal and associated structures at the Port of Redwood City. Prepared the biological constraints analysis and will prepare the biological resources section of the EIR/EIS (upon refunding of the project by the state). Key biological issues evaluated included potential impacts to tidal marsh habitat and associated special-status wildlife species (e.g., salt marsh harvest mouse, California clapper rail, California black rail) and disturbance to harbor seals.

Hercules New Town Center Project, *Contra Costa County*. Pacific Biology provided assistance to the City of Hercules Redevelopment Agency in creating a strategy to obtain natural resources permits for the New Town Center project. As proposed at the time, the project would result in the fill of over 1-acre of jurisdictional wetlands in which California red-legged frog were documented. Therefore, an individual permit is required under Section 404 of the federal Clean Water Act, as well as consultation under Section 7 of the federal Endangered Species Act. Pacific Biology developed a permitting strategy that included conducting updated protocol surveys for red-legged frogs, evaluating the feasibility and expected cost of creating mitigation habitat on city-owned parcels, conducting a cost benefit analysis of creating mitigation habitat versus purchasing mitigation credits, and early coordination with the regulatory agencies.

Tesla Road, Greenville Road, and Mountain House Road Pavement Rehabilitation Projects, *Alameda County*. On behalf of Caltrans and the Alameda County Public Works Agency, three separate NES documents were prepared. Key biological issues included potential impacts to California red-legged frog, California tiger salamander, San Joaquin kit fox, and nesting birds. Avoidance and minimization measures were provided to ensure that there would be no effect on federally-listed species.

Storm Water Channel Zone 3A, Line A Silt Removal Project, *Alameda County*. On behalf of the Alameda County Flood Control and Water Conservation District, Pacific Biology prepared the BA for the project. The project site includes aquatic habitat within Old Alameda Creek and associated brackish and tidal marshes. The proposed action is to excavate accumulated sediments from the flood plain in order to restore the design flood flow and to improve the flood protection of adjacent properties. Key issues included potential impacts to salt marsh harvest mouse and steelhead.

Damon Slough Desilting Project, *Alameda County*. The proposed desilting area is located in the portion of Damon Slough adjacent to and downstream of the Oakland Coliseum. Prepared the Biological Assessment (BA) on behalf of the Alameda County Public Works Agency. Key issues included potential impacts to California clapper rail and green sturgeon.

Laguna Creek (Zone 6 Line E) Flood Damage Reduction Project, Alameda County. On behalf of the Alameda County Flood Control and Water Conservation District, Pacific Biology prepared the BA for the project. Pacific Biology also oversaw the preparation of the wetland delineation, and is currently overseeing the preparation of the wetland mitigation and monitoring plan and permit applications for the project (i.e., Section 404, 401, 1600). Key issues evaluated included potential impacts California clapper rail, steelhead, and California tiger salamander.

Devils Gulch Water Quality Improvement Project, *Marin County*. On behalf of the Marin Municipal Water District (MMWD), Pacific Biology prepared the biological habitat evaluation report and the biological resources section of the Initial Study. Devils Gulch supports Coho salmon and steelhead, and California red-legged frog, foothill yellow-legged frog, and western pond turtle also have potential to occur. Appropriate avoidance measures were developed to protect these species during construction activities. Pacific Biology also oversaw focused rare plant surveys.

Golden Gate Bridge Physical Suicide Deterrent System Project NES, *San Francisco and Marin Counties*. Prepared the NES on behalf of Caltrans and the Golden Gate Bridge Transportation District. Issues evaluated included potential harm to migrating birds due to collisions or entanglement with the barrier and potential impacts to sensitive biological resources (e.g., Mission blue butterfly) bordering staging areas in the Golden Gate National Recreation Area.

Oakland Central Estuary Waterfront Specific Plan Project, *Alameda County*. The project includes the preparation of a Specific Plan for the 428-acre Central Estuary waterfront area and the preparation of the EIR. Prepared the Biological Evaluation Report that describes the biological resources present, identifies areas containing sensitive biological resources that should be considered in development of the Specific Plan, and identifies anticipated biological permit requirements.

Lifemark Master Land Use Plan, *San Mateo County*. Prepared a Biological Resources Constraints and Opportunities Evaluation for use in development of the Lifemark Master Land Use Plan. The evaluation was conducted to identify portions of the 505-acre Sky Lawn property that contain or could contain sensitive biological resources. The identification of these areas during the preliminary planning stages allowed biologically sensitive areas to be avoided or otherwise considered in development plans, as well as to identify areas that focused biological surveys would be required. Key biological issues included potential habitat for federally-listed wildlife species (i.e., California red-legged frog, San Francisco garter snake, bay checkerspot butterfly), native grasslands, and jurisdictional wetlands. The analysis included conducting a series of field surveys, including focused rare plant surveys and habitat/plant community mapping. All collected data was compiled in a GIS database. The findings of the analysis were used in designing an environmentally sensitive land use plan. The report served as the basis of the biological resources section of the Initial Study prepared by San Mateo County.

Foothill and Mines Road Drainage Inlet Structure Replacement Project, *East Alameda County*. At the request of the Alameda County Public Works Agency, Pacific Biology was brought onto the project to revise

the BA prepared by another consultant (due to comments received from the USFWS on that document). The BA was revised to meet the requirements of the East Alameda County Conservation Strategy and the USFWS issued a BO for the project. An application for an Incidental Take Permit from the CDFW was also prepared and that permit will be issued. Pacific Biology also oversaw the preparation of the Initial Study/Mitigated Negative Declaration and secured mitigation lands for the project. Key issues included potential impacts to California red-legged frog, California tiger salamander, San Joaquin kit fox, Alameda whipsnake, and burrowing owls.

U.C. Santa Cruz Ranch View Terrace and McHenry Library EIRs, *Santa Cruz County.* Prepared the biological resources EIR chapters for the Ranch View Terrace and McHenry Library projects at U.C. Santa Cruz. Issues included indirect impacts to seeps and associated special-status plant species, the effect of altered surface runoff on special-status cave dwelling invertebrates, and potential impacts to the federally-listed Ohlone tiger beetle and California red-legged frog. Mitigation measures were developed to address all project-related impacts to biological resources and responses were prepared for all public comments on the biological resources chapter of the Draft EIR.

SR 101 Implementation Plan, *Santa Clara County*. The study area included the portion of SR 101 from just west of Airport Parkway to just east of Coyote Creek, as well as surrounding industrial and commercial areas. The evaluation served to identify areas that contain sensitive biological resources. All habitats were generally characterized, the potential occurrence of special-status plant and wildlife species was evaluated, and sensitive and jurisdictional habitats (e.g., riparian habitat, wetlands) were identified. Recommendations were made regarding sensitive biological resources that should be avoided and future biological studies that should be conducted.

Helios Energy Research Facility and Computational Research Facility EIRs, *Alameda County*. Both project sites are located on the Lawrence Berkeley National Laboratory campus. Prepared the biological resources sections of both documents and responded to public comments. Key issues included potential impacts to the federally-listed Alameda whipsnake and to jurisdictional wetlands.

Pelandale/McHenry Specific Plan EIR, *Stanislaus County.* Prepared the biological resources section of the EIR. The 85-acre Specific Plan site is located in the City of Modesto and contains undeveloped land bordered by urban uses. Protocol surveys for nesting burrowing owls were conducted and the site's value as Swainson's hawk foraging habitat was evaluated. Mitigation measures were developed to address all project-related impacts to biological resources.

Lower Pinole Creek Demonstration Project, *Contra Costa County*. Managed and participated in the jurisdictional wetland delineation, rare plant surveys, and plant communities mapping. Prepared the biological resources section of the Initial Study. Issues evaluated included potential impacts to California red-legged frog, California clapper rail, California black rail, steelhead, salt marsh harvest mouse, and western pond turtle. Conducted the required biological monitoring for state and federally listed species and nesting birds.

Pinole Creek Steelhead Habitat Mapping, *Contra Costa County*. Prepared the Lower Pinole Creek Steelhead Assessment for the Contra Costa RCD. The project was undertaken to assess the quality of fisheries habitat in lower Pinole Creek and its potential to support steelhead. The study area included the portion of Pinole Creek from Highway I-80 upstream to the Pinole City limit (approximately 2.6 miles upstream). The assessment was coordinated with a parallel assessment conducted by the EBMUD in the upper part of the Pinole Creek watershed.

Centennial Specific Plan Draft Biota Report, *Los Angeles County.* Assisted in the preparation of the Draft Biota Report for the 12,000-acre Centennial Specific Plan project site located on Tejon Ranch. The report incorporated the results of focused surveys for rare plants, burrowing owl, California red-legged frog, western pond turtle, Tehachapi slender salamander, yellow-blotched salamander, and small mammals. All

resources on the project site under the jurisdiction of the ACOE and/or CDFG were delineated. The report also included an in depth study of wildlife movement pathways (including the use of trail/infrared cameras) and the project site's role as part of a regional wildlife movement corridor.

Polo Ranch EIR, ***Santa Cruz County*****.** Prepared the biological resources section of the EIR. The 114-acre project site is located in Scotts Valley and contains populations of two federally Endangered plant species (i.e., Scotts Valley spineflower and Scotts Valley polygonum), as well as other special-status plant species. A review was conducted of the biological documentation prepared for the site between 1998 and 2003, and the adequacy of the documentation was evaluated. Responses were prepared to public comments.

Bean Creek Estates Mitigated Negative Declaration, ***Santa Cruz County.*** Prepared the biological resources section of the Initial Study/Mitigated Negative Declaration. Three federally-listed species occur on the project site, including Mount Hermon June beetle, Santa Cruz wallflower, and Ben Lomond spineflower. The document was written to be consistent with the anticipated requirements of a pending Habitat Conservation Plan. Incorporated/designed mitigation measures to protect and manage for federally-listed species within a designated open space area.

100 Mayfield EIR, ***Santa Clara County*****.** Prepared the biological resources chapter of the EIR. The project site is located in an urban location, partially within both the City of Mountain View and City of Palo Alto. Worked with the project arborist in identifying the relative preservation priority of Heritage trees and tree groups. Other issues evaluated included use of the trees by nesting and migrating birds. Responses were prepared for all public comments on the biological resources chapter of the Draft EIR.

Capitola Expansion and Renovation EIR, ***Santa Cruz County*****.** Prepared the biological resources chapter of the EIR. The site borders Soquel Creek and associated riparian habitats. Issues evaluated included potential impacts to steelhead, California red-legged frog, and western pond turtle. Mitigation measures were developed to address all project-related impacts to biological resources and responses were prepared for all public comments on the biological resources chapter of the Draft EIR.

Monarch Village EIR, ***Santa Cruz County*****.** Prepared the biological resources chapter of the EIR. The project site is located in Santa Cruz, adjacent to Moore Creek. Issues evaluated included potential impacts to adjacent riparian habitat and associated special-status wildlife species, including California red-legged frog and western pond turtle. Indirect impacts resulting from increased human and domestic animal presence near the creek zone were also evaluated. Mitigation measures were developed to address all project-related impacts to biological resources and responses were prepared for all public comments on the biological resources chapter of the Draft EIR.

Riverwalk and Del Rio Hills Projects, ***Solano County.*** Prepared the biological resources sections of both EIRs. The Riverwalk project site is approximately 240-acres and the Del Rio Hills project site is approximately 480-acres. Key biological resources issues included the loss of Swainson's hawk foraging habitat, the fill of jurisdictional wetlands, and indirect impacts associated with increased human presence and increased light and glare. Mitigation measures were developed to reduce all project-related impacts to a less than significant level.

Flying J Truck Stop, Fairfield, ***Solano County*****.** Prepared the biological resources section of the EIR. Key biological issues included the loss of Swainson's hawk foraging habitat and potential impacts to burrowing owls. Mitigation measures were developed to reduce all project-related impacts to a less than significant level.

Phoenix Lake Road Pipeline Seismic Reliability Project, ***Marin County*****.** Prepared a Biological Assessment (BA) on behalf of the Marin Municipal Water District. The BA was provided to the USFWS as part of the

Section 7 Consultation conducted for the project. Key issues included potential impacts to steelhead, Coho salmon, northern spotted owl, and California red-legged frog.

Watsonville Home Depot EIR, ***Santa Cruz County*****.** Prepared the biological resources chapter of the EIR. Key issues evaluated included potential direct and indirect impacts to riparian habitat and associated special-status wildlife species, and the potential loss of Santa Cruz tarplant (a state-listed species).

North County Corridor Project, ***Stanislaus County*****.** Three road alignments were evaluated that span a length of approximately 26 miles between Highway 99 near Salida to Highway 120 just east of Oakdale. The biological evaluation served to characterize onsite habitats, provide a preliminary evaluation of the potential for special-status plant and wildlife species and sensitive habitats to occur, and to identify any biological constraints that could necessitate modifying the location of the alignments.

Evergreen Valley College 2025 Facilities Master Plan EIR, ***Santa Clara College***. Prepared the biological resources section of the EIR and responded to public comments. Key issues evaluated included potential impacts to burrowing owl, white-tailed kite, Cooper's hawk, and roosting bats. Mitigation measures were developed to reduce all potential impacts to biological resources to a less than significant level.

Foothill College Master Plan EIR, ***Santa Clara County*****.** Prepared the biological resources chapter of the Master Plan EIR. The campus is bisected by Adobe Creek and is located in an area of sparse development. Primary issues included impacts to a riparian corridor and associated special-status wildlife species and the loss of burrowing owl habitat. Mitigation measures were developed to address all project-related impacts to biological resources and responses were prepared for all public comments on the biological resources chapter of the draft EIR.

California State University (CSU) East Bay Hayward Campus Master Plan EIR, ***Alameda County***. Prepared the biological resources section of the EIR and responded to public comments. Key issues evaluated included potential impacts to special-status plants, burrowing owl, white-tailed kite, Cooper's hawk, peregrine falcon, and roosting bats. Mitigation measures were developed to reduce all potential impacts to biological resources to a less than significant level. Subsequent work was conducted for the Campus to protect peregrine falcons during building demolition activities.

PG&E Valve Lot Relocation Project, ***Solano County*****.** Prepared the Biological Evaluation Report and assisted in the preparation of the Caltrans NES. The project included the relocation of a PG&E valve lot and installation of new gas pipelines connecting the existing pipeline system to the new valve lot. Key issues evaluated included potential impacts to California red-legged frog, Swainson's hawk foraging habitat, and jurisdictional wetlands.

*Additional project profiles available upon request

JAKE H. SCHWEITZER, Senior Ecologist/GIS Specialist

EMPLOYMENT HISTORY

Vollmar Natural Lands Consulting (VNLC)	Senior Ecologist/GIS Specialist	2003 - present
Wetlands and Water Resources	Wetland Ecologist/GIS Specialist Consultant	2001 - 2005
U.C. Berkeley College of Natural Resources, CAMFER Lab	Ecologist/GIS Specialist Research Assistant	2000 - 2001
Applied Geographics	GIS Technical Manager	1997 - 2000
City of Oakland, Measure I Emergency Response System	GIS Technician	1996 - 1997
U.C. Berkeley Map Library	Assistant Librarian	1993 - 1996

PROFESSIONAL SUMMARY

Mr. Schweitzer combines 16 years of experience as a professional vegetation and wetland ecologist with over 19 years of experience in cartography and geographic information science (GIS, remote sensing/image analysis, and GPS technology). His ecological focus has been in botanical and wetland sciences. He holds federal and state permits to survey for listed fairy shrimp, California red-legged frog, and California tiger salamander and is certified in the vegetation mapping techniques developed by the California Native Plant Society and California Department of Fish and Wildlife. He is also trained to conduct California Rapid Assessment Method surveys. Mr. Schweitzer has been a docent for the past nine years at the East Bay Regional Park Botanic Garden, teaching native California plant ecology to the public.

Mr. Schweitzer has applied his skills to a wide array of projects, from surveying and modeling threats posed by Sudden Oak Death Syndrome, to performing large-scale botanical and aquatic wildlife surveys, to designing habitat restoration projects. He has served as lead field ecologist and GIS specialist for many of VNLC's regional conservation and land use projects from the Bay Area to the San Joaquin Valley and surrounding foothill regions. He has led survey and mapping efforts at the 8,000-acre Walker Ridge Proposed Wind Energy Site (Colusa and Lake Counties), the 1,600-acre Tres Vaqueros Wind Energy Site (Contra Costa County), the 1,300-acre Calabazas Creek Open Space Preserve (Sonoma County), and the 16,000-acre Rancho Arroyo Seco Land Use and Mitigation Bank Project (Western Amador County). He is currently overseeing a federally funded project involving the propagation and reintroduction of the critically endangered large-flowered fiddleneck (*Amsinckia grandiflora*) into its historic range, and is also managing a project involving surveys and mapping biological resources on private ranchlands throughout California's Central Coast Ranges.

EDUCATION

B.A. Physical Geography (concentration in ecology and geographic information science), University of California, Berkeley, 1995. Recipient of Lucille McClish Oberlander Award "for Outstanding Achievement in Physical Geography."

REPRESENTATIVE PROJECT EXPERIENCE

SELECTED BOTANICAL AND AQUATIC RESOURCE SURVEYS

Marin Municipal Water District Open Services (MMWD) (Marin County, CA)
Senior Ecologist providing a wide range of environmental services to the MMWD, including habitat assessments, rare plant surveys, vegetation surveys and mapping, and wetland delineations. Played a key role in preparing the biological resources section of the Administrative Draft Environmental Impact Report (ADEIR) of the MMWD Vegetation Management Plan (currently called the Wildlife Protection and Habitat Improvement Plan), and has served as the lead botanist on many other MMWD projects. The service area includes a variety of habitats throughout central Marin County, from annual and native grasslands, to serpentine chaparral, to oak woodlands, to redwood forest, to stream corridors and lakes. (VNLC, 2009–Present).

Calabazas Creek Open Space Preserve Biological Resource Surveys (Sonoma County, CA). Senior Ecologist and project manager. Conducting and managing various biological surveys in support of a comprehensive management plan for this 1,300-acre open space preserve for the Sonoma County Agricultural Preservation and Open Space District. The Preserve encompasses oak woodland, mixed evergreen forest, chaparral, riparian forest, seasonal wetland, and grassland habitats. On-going site surveys include special-status plant surveys, plant community mapping, noxious weed mapping, sudden oak death occurrence mapping, encroaching Douglas fir mapping, California freshwater shrimp surveys, amphibian surveys, and jurisdictional wetland delineation. Results to date include the documentation of four special-status plant species and four special-status animal species. (VNLC, April 2013-Present)

Rancho Arroyo Seco Sensitive Biological Resource Surveys (Amador County, CA). Senior ecologist and field surveys manager. On-going surveys are focused on locating and mapping special-status plants, amphibians, wetland habitats, and aquatic invertebrates on 16,000-acre ranch. The land owner is interested in documenting all sensitive biological resources on the ranch. The site is situated within a transitional zone between grassland and oak woodlands and includes extensive Ione Manzanita Chaparral habitat. Providing documentation and mapping of all sensitive botanical and aquatic wildlife resources. (VNLC, 2007-Present)

Concord Naval Weapons Station (CNWS) Botanical Surveys (Contra Costa County, CA). Senior botanist and project manager. Conducted botanical and reconnaissance-level wetland surveys on over 5,000 acres of the "Inland Area" of the CNWS, which is in the process of being transferred to private entities and converted to a mix of development and open space. Provided a complete botanical resources report, including a floristic inventory as well as documentation and mapping of sensitive botanical resources, noxious weeds, and plant communities to be included in EIR for the project. (VNLC, 2008)

Tres Vaqueros Repower Project (Contra Costa County, CA). Senior botanist and project manager. Conducted botanical and reconnaissance-level wetland and wildlife surveys on over 1,300-acre project site near Altamont Pass, where additional wind turbines are proposed to be added to this important wind resource area. Provided complete floristic inventory, list of sensitive botanical and wildlife resources, and habitat map to be included in the CEQA process. (VNLC, 2008-2011)

Alameda County Public Works Agency Open Services
Senior Ecologist and Project Manager overseeing VNLC's biological services contract with the ACPWA for the past nine years. A total of 35 projects have been completed to date. Services have included wetland delineations, riparian habitat mapping, rare plant surveys, tree surveys, wildlife habitat assessments, and the preparation of mitigation/monitoring restoration plans. (VNLC 2007–Present)

Sears Point Property Restoration and Management Plan Project (Sonoma County, CA). Ecologist, surveyor and spatial analyst. Conducted surveys and analyses of watersheds and aquatic wildlife habitats and assisted in the development of an upland and seasonal wetland habitat management plan for this 2,300-acre conservation easement. The site extends from Sears Point to the margin of San Pablo Bay in southeastern Sonoma County, California. The management plan is focused on the conservation and enhancement of grasslands, riparian woodlands, vernal pools, and seasonal creeks, and the control of invasive species, including bullfrogs and noxious weeds. (VNLC, 2005-2006)

Caltrans 'Madera Pools' In-house Mitigation Bank Project (Madera County, CA). Ecologist, surveyor, and spatial analyst. Conducted botanical and wetland boundary surveys for biological assessment report, and delineated vernal pools and swales for creation, enhancement and restoration according to historic ecological conditions. Developed detailed wetland design specifications. This 200-acre project site represents an in-house mitigation bank for Caltrans in the San Joaquin Valley service area. (VNLC, 2003 - 2009)

La Purisima Conservation Bank Baseline Biological Monitoring (Santa Barbara County, CA)
Client: Purisima Ranches, LLC
Role: Senior Ecologist
Conducted baseline vegetation monitoring, preliminary assessments, developed a complete floristic inventory and habitat maps to aid in the establishment of La Purisima Conservation Bank, the first conservation bank in Santa Barbara County. Assisted in the development of a land management plan and oak woodland restoration plan for the 1,300-acre property located in the hills near Lompoc, CA. (VNLC 2012–Present)

Integrated Regional Wetland Monitoring (SF Bay Estuary, CA). Ecologist, surveyor and spatial analyst. Analyzed conditions of natural and restored wetlands, pared according to local environmental setting, from the western delta to San Pablo Bay. This on-going study for CalFed seeks to understand and document ecological differences between relatively undisturbed and restored wetland environments in the San Francisco Bay Delta region, in order to provide additional guidance in future wetland restoration projects. (Wetlands and Water Resources, 2003 - 2005)

Triangle Marsh Tidal Wetland Enhancement (Marin County, CA). Ecologist, surveyor and landscape model designer. Analyzed existing conditions and built models of restoration alternatives of this small tidal wetland enhancement project sponsored by the Marin Audubon Society. Involved in planning and implementation of channel excavation, berm construction and public access platform. (Wetlands and Water Resources, 2003 - 2005)

Appendix C: Representative Site Photographs (August 25, 2016)

Photo 1: Fresh Emergent Wetland Habitat (Pond at Center)

Photo 2: Montane Hardwood-Conifer Habitat

Photo 3: Annual Grassland Habitat (at upper edge of pond)

Photo 4: Annual Grassland/Ruderal Habitat

Photo 5: Mixed Chaparral Habitat

Photo 6: Redwood Habitat

Photo 7: Onsite Barn/Storage Structure

Appendix D: Plant List

Appendix D. List of All Vascular Plant Taxa Identified at the Fingerman Property, Napa County, California. Survey Conducted August 25, 2016, by Vollmar Natural Lands Consulting, Berkeley, CA.

Family Name- Scientific (Common)	Scientific Name	Common Name	Nativity - Cal-IPC
Agavaceae (Century-plant Family)	*Chlorogalum pomeridianum*	Wavyleaf Soap Plant	Native
Alismataceae (Water-plantain Family)	*Alisma triviale*	Northern Water Plantain	Native
Anacardiaceae (Sumac Family)	*Toxicodendron diversilobum*	Western Poison Oak	Native
Apiaceae (Carrot Family)	*Daucus carota*	Carrot, Queen Anne's Lace	Naturalized
Apiaceae (Carrot Family)	*Osmorhiza berteroi*	Sweetcicely	Native
Apiaceae (Carrot Family)	*Torilis arvensis*	Tall Sock-Destroyer	Naturalized - Moderate
Aristolochiaceae (Birthwort Family)	*Aristolochia californica*	California Dutchman's Pipe	Native
Asteraceae (Aster Family)	*Adenocaulon bicolor*	Trail Plant	Native
Asteraceae (Aster Family)	*Baccharis pilularis* ssp. *consanguinea*	Coyote Brush	Native
Asteraceae (Aster Family)	*Carduus pycnocephalus* ssp. *pycnocephalus*	Italian Thistle	Naturalized - Moderate
Asteraceae (Aster Family)	*Cirsium vulgare*	Bull Thistle	Naturalized - Moderate
Asteraceae (Aster Family)	*Dittrichia graveolens*	Stinkwort	Naturalized - Moderate
Asteraceae (Aster Family)	*Hedypnois cretica*	Crete Weed	Naturalized
Asteraceae (Aster Family)	*Heterotheca grandiflora*	Telegraph Weed	Native
Asteraceae (Aster Family)	*Hieracium albiflorum*	White Hawkweed	Native
Asteraceae (Aster Family)	*Lactuca serriola*	Prickly Lettuce	Naturalized
Asteraceae (Aster Family)	*Leontodon saxatilis* ssp. *saxatilis*		Naturalized
Asteraceae (Aster Family)	*Logfia gallica*	Daggerleaf Cottonrose	Naturalized
Asteraceae (Aster Family)	*Pseudognaphalium beneolens*		Native
Asteraceae (Aster Family)	*Pseudognaphalium canescens*	Wright's Cudweed	Native
Asteraceae (Aster Family)	*Sonchus oleraceus*	Common Sow Thistle	Naturalized
Asteraceae (Aster Family)	*Xanthium strumarium*	Cocklebur	Native
Betulaceae (Birch Family)	*Corylus cornuta* ssp. *californicus*	California Hazel	Native
Brassicaceae (Mustard Family)	*Hirschfeldia incana*	Mediterranean Mustard	Naturalized - Moderate
Calycanthaceae (Strawberry-shrub Family)	*Calycanthus occidentalis*	Sweet-Shrub, Spicebush	Native
Caprifoliaceae (Honeysuckle Family)	*Lonicera hispidula*	Pink Honeysuckle	Native
Caprifoliaceae (Honeysuckle Family)	*Symphoricarpos mollis*	Creeping Snowberry	Native
Cupressaceae (Cypress Family)	*Juniperus occidentalis*	Western Juniper	Native
Cyperaceae (Sedge Family)	*Cyperus eragrostis*	Tall Flatsedge	Native
Cyperaceae (Sedge Family)	*Eleocharis macrostachya*	Pale Spikerush	Native
Cyperaceae (Sedge Family)	*Schoenoplectus californicus*	Southern Bulrush	Native
Cyperaceae (Sedge Family)	*Schoenoplectus mucronatus*	Rough-Seed Bulrush	Naturalized
Dennstaedtiaceae (Bracken Fern Family)	*Pteridium aquilinum* var. *pubescens*	Western Brackenfern	Native
Dryopteridaceae (Wood Fern Family)	*Dryopteris arguta*	Coastal Woodfern	Native
Dryopteridaceae (Wood Fern Family)	*Polystichum munitum*	Western Sword Fern	Native
Ericaceae (Heath Family)	*Arbutus menziesii*	Pacific Madrone	Native
Ericaceae (Heath Family)	*Arctostaphylos canescens* ssp.	Hoary Manzanita	Native
Ericaceae (Heath Family)	*Arctostaphylos stanfordiana*	Stanford's Manzanita	Native
Euphorbiaceae (Spurge Family)	*Croton setigerus*	Turkey-Mullein	Native
Euphorbiaceae (Spurge Family)	*Euphorbia oblongata*	Oblong Spurge	Naturalized - Limited
Fabaceae (Pea Family)	*Acmispon americanus* var. *americanus*	Spanish Lotus	Native
Fabaceae (Pea Family)	*Acmispon brachycarpus*	Short Podded Lotus	Native
Fabaceae (Pea Family)	*Amorpha californica* (nf)	False Indigo	Native
Fabaceae (Pea Family)	*Genista monspessulana*	French Broom	Naturalized - High
Fabaceae (Pea Family)	*Lathyrus vestitus* var. *vestitus*	Hillside Pea	Native
Fabaceae (Pea Family)	*Lotus corniculatus*	Bird's-Foot Trefoil	Naturalized
Fabaceae (Pea Family)	*Spartium junceum*	Spanish Broom	Naturalized - High
Fabaceae (Pea Family)	*Trifolium glomeratum*	Clustered Clover	Naturalized

Family Name- Scientific (Common)	Scientific Name	Common Name	Nativity - Cal-IPC
Fagaceae (Beach Family)	*Quercus x morehus*	Oracle Oak	Native
Fagaceae (Beech Family)	*Notholithocarpus densiflorus*		Native
Fagaceae (Beech Family)	*Quercus berberidifolia*	Scrub Oak	Native
Fagaceae (Beech Family)	*Quercus chrysolepis*	Maul Oak, Canyon Live Oak	Native
Fagaceae (Beech Family)	*Quercus wislizeni* var. *frutescens*	Scrub Oak	Native
Fagaceae (Beech Family)	*Quercus wislizeni* var. *wislizeni*	Interior Live Oak	Native
Garryaceae (Silk Tassel Family)	*Garrya fremontii*	Bearbrush	Native
Hypericaceae (St. John's Wort Family)	*Hypericum concinnum*	Gold-Wire	Native
Iridaceae (Iris Family)	*Iris macrosiphon*	Bowltube Iris	Native
Juglandaceae (Walnut Family)	*Juglans hindsii*	Northern California Black Walnut	Native
Juncaceae (Rush Family)	*Juncus bufonius* var. *occidentalis*	Western Toad Rush	Native
Juncaceae (Rush Family)	*Juncus oxymeris*	Brownheaded Rush	Native
Juncaceae (Rush Family)	*Juncus tenuis*	Poverty Or Slender Rush (Group 5)	Native
Lamiaceae (Mint Family)	*Melissa officinalis*	Lemon Balm	Naturalized
Lamiaceae (Mint Family)	*Monardella* sp. (nf)	Coyote Mint	Native
Lamiaceae (Mint Family)	*Salvia sonomensis*	Creeping Sage	Native
Lauraceae (Laurel Family)	*Umbellularia californica*	California Laurel	Native
Melanthiaceae (False-hellebore Family)	*Toxicoscordion fremontii*	Helleborine	Native
Myrsinaceae (Bryophyte)	*Anagallis arvensis*	Scarlet Pimpernel	Naturalized
Myrtaceae (Myrtle Family)	*Eucalyptus camaldulensis*	Red Gum, River Red Gum	Naturalized - Limited
Oleaceae (Olive Family)	*Olea europaea*	Olive	Naturalized - Limited
Phrymaceae (Lopseed Family)	*Mimulus aurantiacus* var. *aurantiacus*	Bush Monkeyflower	Native
Pinaceae (Pine Family)	*Pinus attenuata*	Knobcone Pine	Native
Pinaceae (Pine Family)	*Pinus radiata*	Monterey Pine	Native
Pinaceae (Pine Family)	*Pinus sabiniana*	Foothill Pine	Native
Pinaceae (Pine Family)	*Pseudotsuga menziesii* var. *menziesii*	Douglas-Fir	Native
Plantaginaceae (Plantain Family)	*Kickxia elatine*	Sharpleaf Cancerwort	Naturalized
Poaceae (Grass Family)	*Aira caryophyllea*	Silver Hair Grass	Naturalized
Poaceae (Grass Family)	*Anthoxanthum occidentale*	California Sweet Grass	Native
Poaceae (Grass Family)	*Avena barbata*	Slender Wild Oat	Naturalized - Moderate
Poaceae (Grass Family)	*Avena fatua*	Wild Oat	Naturalized - Moderate
Poaceae (Grass Family)	*Brachypodium distachyon*	Annual False-Brome	Naturalized - Moderate
Poaceae (Grass Family)	*Briza minor*	Annual Quaking Grass	Naturalized
Poaceae (Grass Family)	*Bromus carinatus* var. *carinatus*	California Brome	Native
Poaceae (Grass Family)	*Bromus diandrus*	Ripgut Grass	Naturalized - Moderate
Poaceae (Grass Family)	*Bromus hordeaceus*	Soft Chess	Naturalized - Limited
Poaceae (Grass Family)	*Bromus madritensis* ssp. *rubens*	Red Brome	Naturalized - High
Poaceae (Grass Family)	*Cynosurus echinatus*	Bristly Dogtail Grass	Naturalized - Moderate
Poaceae (Grass Family)	*Elymus glaucus* ssp. *glaucus*	Blue Wildrye	Native
Poaceae (Grass Family)	*Festuca myuros*	Rattail Sixweeks Grass	Naturalized - Moderate
Poaceae (Grass Family)	*Festuca perennis*	Rye Grass	Naturalized - Moderate
Poaceae (Grass Family)	*Gastridium phleoides*	Nit Grass	Naturalized
Poaceae (Grass Family)	*Hordeum marinum* ssp. *gussoneanum*	Mediterranean Barley	Naturalized - Moderate
Poaceae (Grass Family)	*Hordeum murinum* ssp. *leporinum*	Hare Barley	Naturalized - Moderate
Poaceae (Grass Family)	*Melica torreyana*	Torrey's Melic	Native
Poaceae (Grass Family)	*Poa secunda* ssp. *secunda*	One-Sided Blue Grass	Native
Poaceae (Grass Family)	*Polypogon maritimus*	Mediterranean Beard Grass	Naturalized
Polemoniaceae (Phlox Family)	*Navarretia mellita*	Honeyscented Pincushionplant	Native
Polemoniaceae (Phlox Family)	*Navarretia squarrosa*	Skunkweed	Native
Polygalaceae (Milkwort Family)	*Polygala californica*	California Milkwort	Native
Polygonaceae (Buckwheat Family)	*Rumex conglomeratus*	Clustered Dock	Naturalized

Family Name- Scientific (Common)	Scientific Name	Common Name	Nativity - Cal-IPC
Potamogetonaceae (Pondweed Family)	*Potamogeton nodosus*	Long-Leaved Pondweed	Native
Pteridaceae (Maidenhair Fern Family)	*Pentagramma triangularis*	Goldback Fern	Native
Rhamnaceae (Buckthorn Family)	*Ceanothus divergens* (nf)	Ceanothus	Native
Rhamnaceae (Buckthorn Family)	*Frangula californica* ssp. *californica*	California Coffeeberry	Native
Rhamnaceae (Buckthorn Family)	*Rhamnus crocea*	Spiny Redberry	Native
Rosaceae (Rose Family)	*Adenostoma fasciculatum* var. *fasciculatum*	Chamise	Native
Rosaceae (Rose Family)	*Heteromeles arbutifolia*	Toyon	Native
Rosaceae (Rose Family)	*Prunus* sp.	Prunus	Cultivar
Rosaceae (Rose Family)	*Rosa gymnocarpa* var. *gymnocarpa*	Wood Rose	Native
Rosaceae (Rose Family)	*Rubus ursinus*	California Blackberry	Native
Rubiaceae (Madder Family)	*Galium porrigens* var. *porrigens*	Graceful Bedstraw	Native
Salicaceae (Willow Family)	*Salix lasiolepis*	Arroyo Willow	Native
Sapindaceae (Soapberry Family)	*Acer macrophyllum*	Big-Leaf Maple	Native
Scrophulariaceae (Figwort Family)	*Verbascum blattaria*	Moth Mullein	Naturalized
Verbenaceae (Verbena Family)	*Verbena* sp.	Vervain	Native

Notes:

- Scientific nomenclature corresponds to the Jepson Manual (Baldwin et al. 2012) or Jepson Interchange (website, 2016).
- (nf) = No flower. Taxonomy needs confirmation.

Forest Ecosystem Management, PLLC
PO Box 455 * Potomac, MT 59823
(406) 490-7427 * cptown@blackfoot.net

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Scott Butler, RPF
Environmental Resource
Management 7000
Leicester CT.
Castle Pines, CO 80180

RE: Hard Six Cellars Project
Property Sec(s) 7 & 18 T08N, R06W, MDB&M - Napa County

Scott,

This is an assessment for northern spotted owls (*strix occidentalis caurinia*), or NSOs, for the Hard Six Cellars Project located off South Fork Diamond Mountain Road in St. Helena, California. The Project proposes to build a winery and caves for storage. No trees are expected to be removed; however, if a tree becomes a hazard during this Project, it may be removed.

Known Northern Spotted Owl Territories:

On 22SEP16, I ran a California Department of Fish &

Wildlife's spotted owl viewer for the above listed project (Attachment #1). An assessment area of 1.3 miles from the project area was used. The 1.3 mile assessment area was created by USFWS for a Take Avoidance of northern spotted owls within the California Interior (outside the redwood zone). Although Napa County does have redwoods, the environmental conditions in the area are hotter/drier than the coastal redwood zone; therefore, the 1.3 mile assessment area was used for this Project (Attachment #2). A summary of the report includes:

There is one known NSO territory within 1.3 miles of the Project Area (NAP007). This territory has been consistently active, often with a pair, since it was first identified in 1989. The activity center is located approximately 2,965' from the Project Area.

Data Version Date:
08/31/2016

Report Generation Date:
9/22/2016

Report #2 - Observations Reported
List of observations reported by site.

Meridian, Township, Range, Section (MTRS) searched:

M_08N_07W Sections(01,02,11,12,13,14,23,24,25,26);

M_08N_06W Sections(04,05,06,07,08,09,16,17,18,19,20,21,28,29,30);

NOTES:

Hand Fix Project

DAP2017

2015 Pair

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Only Reform Trees Dbh

trees ≥ 20" in diameter at breast height, and ≥ 60% canopy closure.

- Suitable Forging Habitat: Mixed tree species with basal area ranging from 120 - 180+ ft2 and ≥ 13" quadratic mean diameter, and ≥ 5 trees per acre of trees ≥ 26" in diameter at breast height, and a mix of ≥ 40% to 100% canopy closure.
- Low Quality Foraging Habitat: Mixed tree species with basal area ranging from 80 - 120+ ft2 and ≥ 11" quadratic mean diameter, and ≥ 40% canopy closure.

Project Area & Landscape:

The Project Area is located off SF Diamond Mountain Road within unsuitable northern spotted owl habitat due to lack of trees (Attachment #3).

The landscape is a mix of agricultural land, second growth forests, and residential houses. The closest forest that would meet USFWS definitions of suitable northern spotted owl habitat is within ¼ mile from the Project (Attachment #4).

The habitat between NAP007 and the Hard Six Project Area is a contiguous forest that the owls could hunt and roost. The topography is such that while within their

activity center, which has been consistently within the same area since 1989, there would be no auditorial disturbance from activities from the Project Area.

Conclusions for Hard Six Cellars Project:

The closest known northern spotted owl territory is located just over ½ mile from the Project Area. The topography is such that noise from the Project Area's construction activities would not disturb the NSOs within their activity center. The Project is located in unsuitable NSO habitat and will not alter any NSO habitat.

There will be no change in northern spotted owl habitat due to this project; therefore, no mitigation measures for northern spotted owls are proposed.

This is a general assessment of northern spotted owls for the above listed project area. This is not a complete Biological Assessment for all listed species for an EIR/EIA, nor can it be used in place of USFWS Protocol Surveys.

If you have questions regarding this information, please feel free to contact me.

Gone Hooting,

Emailed to Scott Butler

Pamela Town
Consulting Wildlife Biologist

Attachments:

1: CA Fish & Wildlife Report #1 & #2 – NSO Database (13 pages)*
2: Topographical Map of NSOs within 1.3 Miles of Hard Six Project (1 page)*
3: Photos of Project Site (2 pages)
4: Photo of Outside Project Area and Aerial Photo of Landscape (2 pages)

* ATTACHMENTS 1 & 2 REMOVED TO PROTECT THE LOCATIONS OF SENSITIVE SPECIES, PER:
CNDDB LICENSE AGREEMENT (*https://nrm.dfg.ca.gov/FileHandler.ashx?DocumentID=75516&inline*)
CNDDB DATA USE GUIDELINES (*https://nrm.dfg.ca.gov/FileHandler.ashx?DocumentID=27285&inline*)

References:

Protocol for Surveying Proposed Management Activities That May Impact Northern Spotted Owls. Endorsed by the U.S. Fish & Wildlife Service. February 2, 2011 and Revised January 9, 2012.

Important Information for Timber Operations Proposed within the Range of the Northern Spotted Owl. California Department of Forestry & Fire Protection. February 2008.

Northern Spotted Owl Viewer (BIOS CA Natural Diversity Database). Managed by California Department of Fish & Wildlife. Filtered by Section number, Township, and Range around specific project area.

BAY AREA OFFICE
1720 Solano Avenue
Berkeley, CA 94707
Phone: 510/559-9603
Fax: 510/559-9605
www.vollmarconsulting.com

Delineation of Potential Jurisdictional Waters

Fingerman Property
Calistoga, Napa County, California

OCTOBER 2016

J-306-07

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FIGURES:

APPENDICES:

1.0 INTRODUCTION

This report summarizes the methods and results of the delineation of potential jurisdictional Waters of the United States at the Fingerman Property project site (project site), located near the City of Calistoga, Napa County, California. The delineation was conducted with the purpose of identifying habitat features potentially subject to regulation by the U.S. Army Corps of Engineers (ACOE), the California Department of Fish and Wildlife (CDFW), and/or the Regional Water Quality Control Board (RWQCB). The proposed project involves construction of winery infrastructure in association with an existing vineyard, including a wine cave with three proposed portals and restoration of an existing man-made pond to be used as a landscape element. Improvements would also be made to the driveway entrance, where the existing driveway meets South Fork Diamond Mountain Road. The project is proposed by the Fingerman Family, which owns the property. The delineation was conducted on September 22, 2016.

The delineation identified 1.160 acre of wetland habitat as well as 0.298 acre of open water habitat, which are associated with the onsite man-made pond. The pond has been constructed within upland habitat and is not hydrologically connected to any potentially jurisdictional stream corridors. Therefore, the habitats are not subject to regulation by the ACOE. However, because the CDFW does not formally differentiate lakes from ponds, the pond may be subject to regulation by the CDFW under Section 1600 *et seq*. (Lake and Streambed Alteration Program). In addition, the pond is potentially subject to regulation by the RWQCB, which regulates California surface water features (see **Section 3.2**).

2.0 PROJECT BACKGROUND INFORMATION

2.1 Project Site Location

The project site is located within the hills south of the City of Calistoga, in Napa County, California (**Figure 1**). The site encompasses a mix of natural habitats and features that are associated with the existing wine vineyard, which is located just south of the project site. The project site is mapped on the Calistoga 7.5 minute U.S. Geological Survey (USGS) topographic quadrangle (**Figure 2**), within Sections 7 and 18 of Township 08N, Range 06W. The site may be accessed from State Highway 29 by heading south on Diamond Mountain Road, continuing for approximately two miles, then turning left (southeast) on South Fork Diamond Mountain Road, then continuing for approximately one quarter of a mile. The Fingerman property driveway intersects South Fork Diamond Mountain Road approximately one quarter of a mile southeast of Diamond Mountain Road (**Figure 2**).

2.2 Description of the Project site

For the purposes of this report, the project site is defined by the 4.6-acre area as shown on **Figure 3** (see **Section 5.1**). The site consists of two separate work areas, including a 4.43-acre portion to the east, where most of the vineyard work will take place, as well as a 0.17-acre area to the west, where improvements will be made to the existing property driveway.

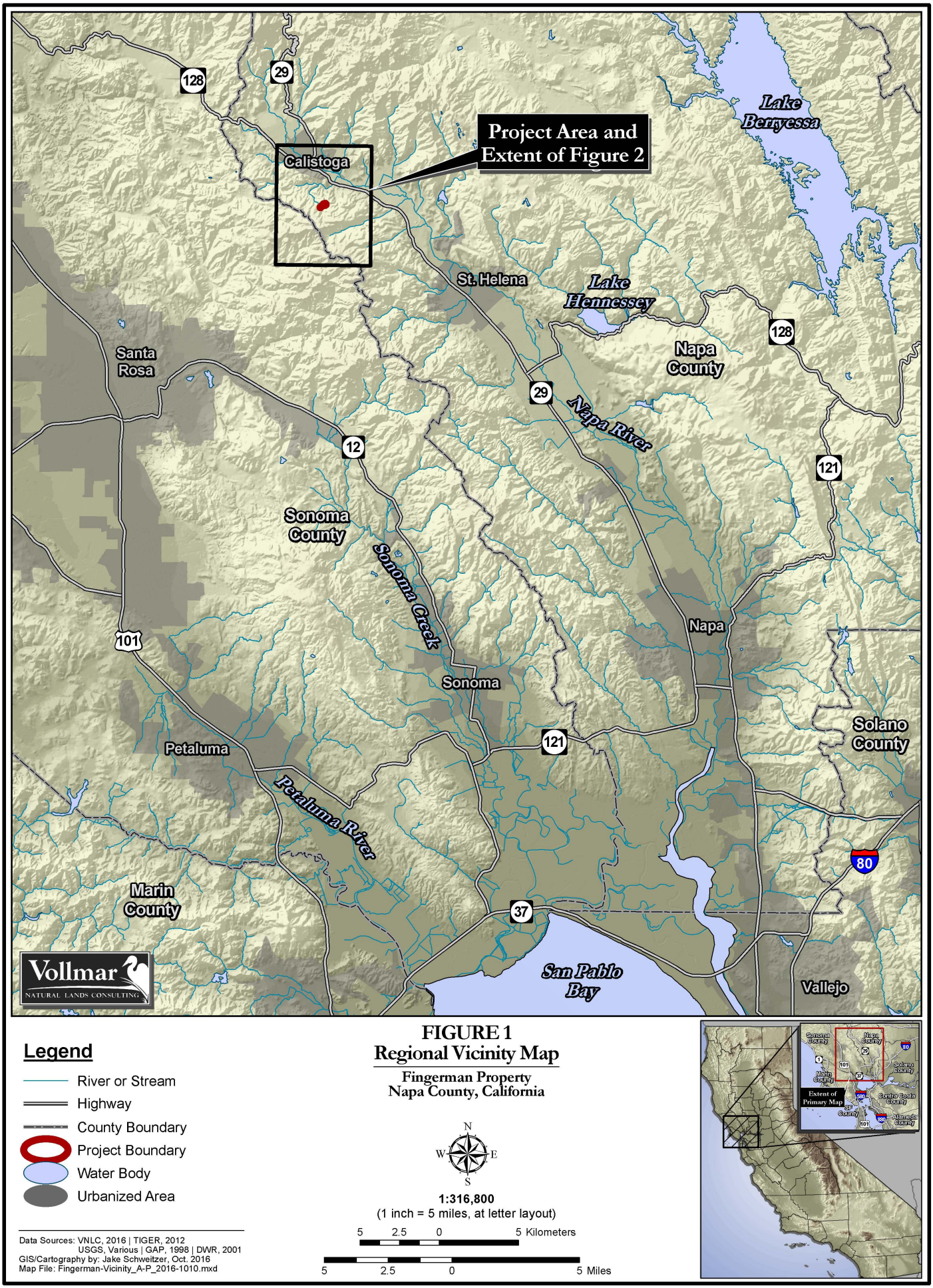


FIGURE 1
Regional Vicinity Map

Fingerman Property
Napa County, California

Project Area and Extent of Figure 3

Foothill Boulevard
Diamond Mountain Road
S. Fork Diamond Mountain Road
Diamond Mountain Creek
Kortum Canyon
Calistoga
Napa
Ritchie
Nash
Kellet Mine
Schramsberg Winery Historical Marker
Diamond Mountain
Water
Trailer Park
Swimming Pool
Courthouse
Gas
Jeep Trail
Railroad Grade
Dunaweal Lane
Silverado Trail
Rosedale Road
Landing Strip
Fairgrounds
High Sch
BM 362
BM 365
29

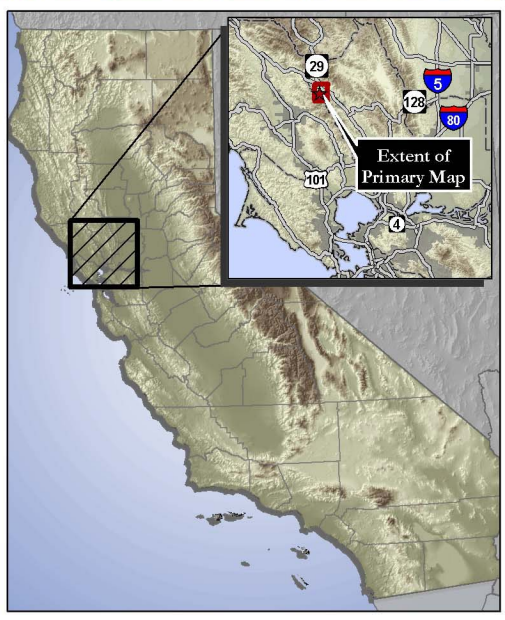
Legend

Road

Project Area Boundary (4.6 ac.)

FIGURE 2
USGS Topographic Map

Fingerman Property, Napa County, CA



N
W E
S

1:24,000
(1 inch = 2,000 feet at tabloid layout)

0 500 1,000 Meters

0 1,000 2,000 4,000 Feet

Data Sources: VNLC, 2016 | USGS, Various
Prunuske Chatham, 2016 | USGS DRG
TIGER, 2010 | GoogleMaps, 2016
GIS/Cartography by Jake Schweitzer, Oct. 2016
Map File: Fingerman-DRG_B-P_2016-1007.mxd

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2.3 Extent and General Setting of the Project site

The project site is located in the rugged hills to the south of Calistoga, within the Southern Mayacamas Mountains landscape unit. The site is within the Napa River watershed, with the Napa River being approximately 1.5 air miles north of the property (**Figure 1**). The majority of the site is situated within a saddle between two hill slopes, and has an elevation range of approximately 1,076 to 1,230 feet above sea level (328-375 meters) (USGS 1997).

The project vicinity is rural and dominated by vineyard agriculture as well as natural habitats consisting of coniferous forest, oak woodland, chaparral, and open grasslands. In general, the coniferous forests and oak woodlands occupy north-facing slopes and valley bottoms. Chaparral is most common along the steepest, mostly south-facing slopes and on shallow, rocky soils. Grasslands occur on deep to moderately deep soils along less steep slopes, ridge tops, and adjacent to larger stream corridors. These habitats are bisected by a network of mostly seasonal streams that feed into the Napa River.

The project site consists of a mix of natural habitats and anthropogenic features. The eastern portion of the site encompasses several structures, as well as natural habitats (**Figure 3**). Many of the structures are associated with the vineyard just south of the project site, which is maintained by the property landowner. The western portion of the site contains only natural habitat surrounding the driveway. Natural habitats within the project site boundary include the following, in general order of extent: fresh emergent wetland (associated with the onsite man-made pond), montane hardwood-conifer, annual grassland/ruderal, mixed chaparral, and redwood, as classified in the California Wildlife Habitat Relationships vegetation classification system (Mayer and Laudenslayer 1988).

Precipitation occurring on the project site drains eastward and westward via two non-wetland swales—there are no streams on the project site.

2.4 Project Personnel

This wetland delineation was conducted by Jake Schweitzer, Senior Ecologist with Vollmar Natural Lands Consulting, on behalf of Prunuske Chatham, Inc.

3.0 REGULATORY BACKGROUND

3.1 Federal Regulatory Framework

The federal government, through Section 404 of the Clean Water Act (CWA) and Section 10 of the Rivers and Harbors Act, has jurisdiction over all Waters of the United States. Waters of the United States are divided into three subsets – 'wetlands', 'navigable Waters', and 'other Waters.' Section 404 of the CWA regulates the discharge of dredged or fill material into Waters of the United States. The CWA grants dual regulatory authority of Section 404 to the U.S. Environmental Protection Agency (EPA) and ACOE. The ACOE is responsible for issuing and enforcing permits for activities in jurisdictional Waters in conjunction with prior permitting authorities in navigable Waters under the Rivers and Harbors Act of 1899. The EPA is responsible for providing oversight of the

permit program. In this capacity, the EPA has developed guidelines for permit review (Section 404 [b][1] Guidelines) and has the authority to veto permits by designating certain sites as non-fill areas (Section 404[c] of the CWA). The EPA also has enforcement authority under Section 404.

The ACOE generally extends its jurisdiction to all areas meeting the criteria for Waters of the United States. Waters of the U.S. are by definition excludes isolated Waters that are not hydrologically connected to navigable rivers and streams. Additionally, the ACOE jurisdiction over wetlands created by artificial means is decided on a case-by-case basis. The ACOE generally does not assume jurisdiction over areas that are (1) artificially irrigated and would revert to upland habitat if the irrigation ceased; or, (2) artificial lakes and ponds created by excavating and/or diking of dry land to collect and retain water, used exclusively for such purposes as stock watering, irrigation, settling basins, or rice growing. Other areas that are not considered jurisdictional Waters of the United States include waste treatment ponds, ponds formed by construction activities including borrow pits until abandoned, and ponds created for aesthetic reasons such as reflecting or ornamental ponds (33 CFR Part 328.3).

Projects which propose activities that fall under the jurisdiction of Section 404 of the CWA and/or Section 10 of the Rivers and Harbors Act must obtain approval from the ACOE through the individual or nationwide permit (NWP) process. Individual permits entail a full public interest review that includes consultation with other federal and state agencies.

3.2 California State and Regional Regulatory Framework

California Department of Fish and Wildlife

The CDFW regulates river, stream, and lake habitats through Fish and Game Code section 1600 *et seq*. Fish and Game Code section 1602 requires an entity to notify the CDFW prior to commencing any activity that may do one or more of the following:

- Substantially divert or obstruct the natural flow of any river, stream, or lake;
- Substantially change or use any material from the bed, channel or bank of any river, stream, or lake; or
- Deposit debris, waste or other materials that could pass into any river, stream or lake.

A “river, stream or lake" includes those that are episodic (i.e., they are dry for periods of time) as well as those that are perennial. This definition includes ephemeral streams, desert washes, and watercourses with a subsurface flow (CDFW 2016). It may also apply to work undertaken within the flood plain of a body of water, the boundary of which may be identified as a topographic feature or as riparian vegetation. In addition, the CDFW does not distinguish between a “pond” and a “lake,” such that relatively small bodies of water, including both natural and artificial features, may be regulated under section 1600.

The CDFW requires a Lake and Streambed Alteration (LSA) Agreement when it determines that the activity, as described in a complete LSA Notification, may

substantially adversely affect existing fish or wildlife resources (ibid). A LSA Agreement includes measures necessary to protect existing fish and wildlife resources. The CDFW may suggest ways to modify a project that would eliminate or reduce harmful impacts to fish and wildlife resources. Before issuing a LSA Agreement, CDFW must comply with the California Environmental Quality Act (CEQA).

Regional Water Quality Control Board

The project area RWQCB, which for the project site is the San Francisco Bay (Region 2) Regional Water Board, has authority to regulate projects that could potentially impact wetlands and/or other waters. According to the California State Water Resources Control Board (2006), this authority derives from the following:

- The state's Porter-Cologne through Waste Discharge Requirements to protect Waters of the state;
- The CWA under Section 4013;
- The San Francisco Bay Basin Water Quality Control Plan (Basin Plan [2005]) (Sections 4.23 & 4.23.4) which is available at http://www.waterboards.ca.gov/sanfranciscobay/basinplan incorporates several State directives to protect wetlands including:
    - Governor's Executive Order W-59-93 (i.e., the "California Wetland's Policy" which requires "No Net Loss of Wetlands");
    - Senate Concurrent Resolution No. 28; and
    - California Water Code Section 13142.5 (applies to coastal marine wetlands).

In addition to the state directives to protect wetlands, the Basin Plan also directs the Water Board staff to use U.S. Environmental Protection Agency's the EPA's CWA 404(b)(1) guidelines to determine circumstances under which the filling of wetlands may be permitted and requires that attempts be made to avoid, minimize, and only lastly to mitigate for adverse impacts (ibid).

California's jurisdiction to regulate its water resources is much broader than that of the federal government. While the U.S. Supreme Court's 2001 decision in Solid Waste Agency of Northern Cook County vs. U.S. Army Corps of Engineers (the "SWANCC" Decision) called into question the extent to which the federal government may regulate isolated, intrastate, non navigable waters as "Waters of the United States" under the CWA, state law is unaffected by that decision. The State Water Resource Control Board's (State Water Board's) Executive Director issued a memo directing the Regional Water Boards to regulate such waters under Porter-Cologne authorities. Porter-Cologne extends to "Waters of the state," which is broadly defined as "any surface water or groundwater, including saline waters, within the boundaries of the state." This definition includes isolated wetlands and any action that may impact isolated wetlands is subject to the Water Board's jurisdiction, which may include the issuance of WDRs. For projects that will impact less than 0.2 acres of "isolated" wetlands, the State Water Board issued Order No. 2004-004-DWQ, Statewide General Waste Discharge Requirements (WDR) for Dredged or Fill Discharges to waters Deemed by the U.S. Army Corps of Engineers

to be Outside of Federal Jurisdiction (General WDRs). These General WDRs streamline the permitting process for low impact projects in isolated wetlands (ibid).

Activities or discharges from a project that could affect California's surface, coastal, or ground waters, require a permit from the local RWQCB. Discharging pollutants (or proposing to) into surface water requires the applicant to file a complete National Pollutant Discharge Elimination System permit application form with the RWQCB. Other types of discharges, such as those affecting groundwater or from diffused sources (e.g., erosion from soil disturbance or waste discharges to land) are handled by filing a Report of Waste Discharge with the RWQCB in order to obtain WDRs. For specified situations, some permits may be waived and some discharge activities can be handled through enrollment in an existing general permit (ibid).

4.0 METHODS

4.1 Preliminary Review

Prior to conducting the field survey, the project ecologist reviewed soil, aerial photography, mapped streams, and other maps and imagery of the project site. This information was used to help characterize the site, identify any potential jurisdictional Waters on a preliminary basis, and guide the on-site survey. Background imagery and a project boundary map produced by VNLC were loaded on to a professional GPS (Trimble GeoXH) for use in navigation and mapping in the field.

4.2 Field Survey

Mr. Schweitzer conducted a formal delineation of the potential jurisdictional Waters within the project site on September 22, 2016. During the course of the survey, he investigated all areas within the project site, noting habitat conditions, recording plant species observed, establishing delineation data points, and taking photographs of significant site features. He also investigated adjacent areas to determine possible connectivity between the site and potential jurisdictional features. At delineation data points, data were collected on soils, hydrology, and plants following the Routine Wetland Determination Method developed by the ACOE. Potential jurisdictional Waters were identified and their boundaries delineated using the routine wetland determination method described in the 1987 ACOE Wetlands Delineation Manual (Environmental Laboratory 1987) and the Interim regional supplement to the Corps of Engineers Wetland Delineation Manual: Arid West Region (ACOE 2008). The specific methods for collecting data on soils, hydrology, and vegetation are described below.

4.2.1 Soils

Soil profiles were taken at each data point using a tile spade shovel and or mattock (for particularly difficult digging situation). Soils were examined for positive hydric soil indicators such as low matrix chromas, redox features, gleys, and iron and manganese concretions. The color and texture of the soil layers encountered were recorded on the Arid West delineation forms (Version 2.0). Soil color was identified using a Munsell soil color chart (Kollmorgen 2000). All soil samples were moistened before determining the

color. Soil map units were cross-referenced with the California hydric soils list (SCS 1993) and the national hydric soils list (SCS 1991). Determination of whether or not the hydric soil criterion was met was based upon the criteria specified by the National Technical Committee for Hydric Soils (SCS 1991) and the Arid West Supplement (ACOE 2008). In most cases, soils with a matrix chroma of 1, and mottled soils with a matrix chroma of 2 or less are considered to meet the hydric soil criteria. Soils that do not have low matrix chromas but are inundated or saturated within 12 inches of the surface are considered to be hydric when those conditions persist for at least 5 percent of the growing season (approximately 14 consecutive days).

4.2.2 Hydrology

Indicators of wetland hydrology were investigated, such as the presence of water marks, cracked soils, drainage patterns, water-stained leaves, and soil saturation/inundation. Additionally, some wetlands in the Arid West region periodically lack indicators of wetland hydrology. If the site is in a geomorphic position where a wetland could occur but the site visit was during the dry season, followed a period of two to three months of below-normal rainfall, or was during a year of an unusually low winter snowpack, indicators of wetland hydrology might not be present. According to the Arid West Supplement, "under these conditions, a site that contains hydric soils and hydrophytic vegetation and no evidence of hydrologic manipulation should be considered a wetland" (ibid).

4.2.3 Vegetation

At each delineation data point, all herbaceous plant species within a five-foot radius were identified and a visual estimate of percent coverage for each species was recorded. Where applicable, all shrub/sapling or vine species within a 15-foot radius and all tree species within a 25-foot radius of the delineation point were identified and each species' percent coverage was recorded. The indicator status of each species was then checked according to the most recent Regional Wetland Plant List for the Arid West region (Lichvar et al. 2016).

Indicator status categories are as follows:

OBL = obligate wetland; >99% probability of occurring in a wetland
FACW = facultative wetland; 67%-99% probability of occurring in a wetland
FAC = facultative; 33%-67% probability of occurring in a wetland
FACU = facultative upland; 1%-33% probability of occurring in a wetland
UPL = obligate upland; <1% probability of occurring in a wetland
NI = no indicator, insufficient information available to determine indicator status
NL = not listed (plants not listed in Reed (1988), including some known to occur in occasionally or primarily in wetlands)

The wetland vegetation criterion is met when the vegetation passes the dominance test: greater than 50 percent of the dominant plants are designated as OBL, FACW, or FAC wetland indicators. The ACOE defines dominant plant species as those that, when included in descending order of their percent cover, together sum up to 50 percent of the

total cover in their stratum (tree, sapling/shrub/subshrub, herb, or woody vine). In addition, all species with at least 20 percent coverage of the total canopy within a stratum are always counted as dominants. All scientific and common plant names correspond to Baldwin et al. (2012).

If the dominance test is not passed, vegetation can be considered hydrophytic if it meets the requirements of the prevalence index, morphological adaptations, or problematic wetland situations (ACOE 2008).

5.0 RESULTS

5.1 Potential Jurisdictional Waters

No potential jurisdictional Waters of the U.S occur within the project site boundaries. A man-made pond retains water throughout the year and also supports wetland vegetation, but the pond is an isolated feature (see below). At the time of the survey, on September 22, 2016, the pond supported the following habitats, as mapped on **Figure 3**:

- 1.106 acres of seasonal wetland
- 0.054 acre of perennial marsh
- 0.298 acre of open water

The pond is not directly hydrologically connected to any other wetlands or other Waters. It does not receive water from any potential jurisdictional features and does not drain into any such features, and is thus isolated. There is no wetland vegetation on the project site beyond the pond habitat, nor are there any hydric soils or indicators of wetland hydrology beyond the pond habitat.

The pond and associated wetland habitats may be subject to regulation by the CDFW as well as by the RWQCB. The project has the potential to impact the pond, and the feature may be considered a "surface water of the state" that is subject to regulation by these agencies regardless of the fact that it is isolated (see **Section 3.2** above).

Representative photographs of site habitats and features are provided in **Appendix A**. Copies of all delineation data forms are provided in **Appendix B**.

5.1.1 Soils

Soils series mapped within the project site include Forward-Kidd complex and Aiken loam. Both of these are volcanic soils that are considered well drained and not classified as hydric (USDA 1991). The Forward-Kidd complex is a gravelly loam that primarily supports chaparral and woodland habitats in the project area. The Aiken loam is a loam with notable clay (approximately 35% within top 24 inches) content and supports primarily woodland and forest habitats in the area (USDA 1978). Soils observed at wetland soil pits, all of which were excavated around the pond's edge, are consistently within the 10YR hue and exhibit a low matrix chroma and a mid-range value of 5/2 within the Munsell soil color chart (2000). The wetland soils also feature distinct or

Pipe spillway. Drains into non-wetland swale

Pipe conducts water from surrounding uplands into pond

Rock-lined inlet swale drains surrounding uplands

Property Driveway

Forward-Kidd complex (gravelly loam)

Aiken loam (loam)

Diamond Mountain Rd

S Fork Diamond Mountain Rd

Diamond Mountain Rd

01 02 03 04 05 06 07 08

Source: Esri, DigitalGlobe, GeoEye, i-cubed, USDA, USGS, AEX, Getmapping, Aerogrid, IGN, IGP, swisstopo, and the GIS User Community

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Legend

- Delineation Data Point
- Drain Pipe
- Seasonal Stream
- Non-wetland Swale
- Road
- Soil Unit Boundary
- Project Area Boundary (4.6 ac.)
- Seasonal Wetland (1.106 ac.)
- Open Water (0.298 ac.)
- Perennial Marsh (0.054 ac.)

Data Sources: VNLC, 2016 | USGS, Various
Prunuske Chatham, 2016 | USDA, 2006
TIGER, 2010 | GoogleMaps, 2016
GIS/Cartography by Jake Schweitzer, Aug. 2016
Map File: Fingerman-WD_B-P_2016-1004.mxd

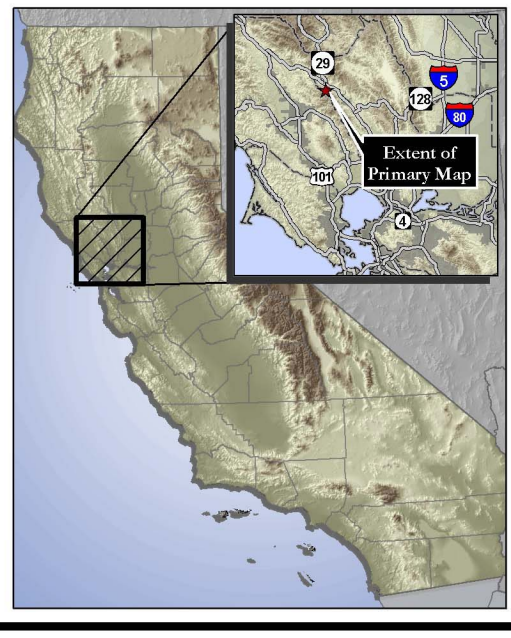
FIGURE 3
Potential Jurisdictional Waters
Fingerman Property, Napa County, CA

N W E S

1:1,800
(1 inch = 150 feet at tabloid layout)

0 37.5 75 Meters

Feet 0 75 150 300



prominent iron oxide concentrations within the matrix or along pore linings, such that hydric soil indicators include depleted matrix. Because the wetland soils are derived from gravelly upland soils (all soils of the Forward-Kidd complex), the texture ranges from loam to silty clay loam, as the pond's hydrology has increased the content of silt, clay, and organic content among the naturally coarse materials. In general, the upper-most layers investigated feature the most clay and silt, while deeper horizons feature increasing loam, sand, and gravel. Upland habitat soils are predominantly sandy loam and uniformly conform to 10YR 5/2 for hue and chroma/value, respectively (ibid). Consistent with the Forward-Kidd complex soil mapping, all of the sampled soils in the vicinity of the pond feature significant gravel content.

Soils within the smaller western portion of the project site were found to exhibit a lower value (i.e., are darker), are naturally higher in clay and organic matter, and are lower in gravel content. The soils investigated were clay loam, though only surface soils were investigated—due to a clear lack of any wetlands or other Waters, no soil pits were excavated in the area.

5.1.2 Hydrology

Most of the project site is situated within a saddle along a ridge that divides two seasonal stream watersheds. The eastern portion of the area dips eastward toward an un-named seasonal stream, and the western portion dips westward toward a seasonal stream that is the primary tributary of Diamond Mountain Creek. Both seasonal streams flow north and are tributaries of the Napa River, which is just over one air mile north of the project site (**Figure 2**). The Napa River flows southeast and drains into San Pablo Bay approximately 40 miles southeast of the project site.

The man-made pond within the project site stores rainfall as well as water draining off the adjacent hill slopes to the north and south. Water from the hill slopes is channeled into the pond via a drain pipe and a non-wetland, rock lined swale at the western and southern edges of the pond, respectively (**Figure 3**). At the eastern edge of the pond, a large pipe within the pond's earthen berm serves as a spillway for the pond should it fill to that level (between 5 to 10 feet above the pond bottom). The spillway pipe directs water into a non-wetland swale that conducts water toward the seasonal stream east of the project site. Judging from the wetland vegetation and water marks along the edges of the pond, the feature holds at least five feet of water for extended periods of time during the wet season. The pond is perennial and appeared to have approximately one foot of water during the September 22 field survey.

The western portions of the site that drain westward also flow through a non-wetland swale. The western edge of the larger parcel, as well as areas within the separate, western-most parcel, flow northwest into the swale. The swale enters the tributary of Diamond Mountain Creek just northwest of the site. The tributary runs along South Fork Diamond Mountain Road, but is separated from the project site by the road.

Indicators of wetland hydrology noted within wetlands associated with the man-made pond include surface soil cracks, water marks, and foot/hoof prints of wildlife (e.g., deer

and other animals). No indicators of wetland hydrology were observed beyond the edge of the pond wetlands.

5.1.3 Vegetation

The majority of the eastern portion of the project site is dominated by the man-made pond and its associated wetland habitats (**Figure 3**). Approximately one-third of the pond basin held water during the late September field survey, and was surrounded by hydric soils that supported a wide variety of hydrophytic plant species. The vegetation zones occur as concentric rings, with each ring outward from the water line supporting species progressively less adapted to saturated soils.

The primary aquatic plant species inhabiting the pond's water column was longleaf pondweed (*Potamogeton nodosus*) [OBL]. At the water's edge was an assemblage of emergent obligate wetland plants, including bog bulrush (*Schoenoplectus mucronatus*)[OBL], California bulrush (*S. californicus*) [OBL], common spikerush (*Eleocharis macrostachya*) [OBL], and northern water plantain (*Alisma triviale*) [OBL]. Areas dominated by California bulrush featured saturated soils and are mapped on **Figure 3** as perennial marsh, whereas most of the remaining areas along the pond edge featured more aerated soils and are mapped as seasonal wetland. Areas topographically above the pond shoreline supported plant species more strictly associated with seasonal wetlands. Common plant species observed in this zone include Mediterranean rabbitsfoot grass (*Polypogon maritimus*) [OBL], western toad rush (*Juncus bufonius* var. *occidentalis*) [FACW], pointed rush (*J. oxymeris*) [FACW], and poverty rush (*J. tenuis*) [FACW]. The next band of vegetation above the pond supported plants associated with seasonal wetlands, but which also occur in upland habitats. These include Italian rye grass (*Festuca perennis*) [FAC], Mediterranean barley (*Hordeum marinum* ssp. g*ussoneanum*) [FAC], and clustered dock (*Rumex conglomeratus*) [FACW].

Only one individual tree was noted within the pond wetland habitats, an arroyo willow (*Salix lasiolepis*) [FACW].

Introduced annual grasses and associated weedy forbs occupy the upland edges of the pond as well as surrounding disturbed habitats associated with the property developments. Dominant grass species identified during the August 2016 survey include Italian ryegrass [FAC], wild oats (*Avena* spp.) [NL], ripgut brome (*Bromus diandrus*) [NL], and nit grass (*Gastridium phleoides*) [FACU]. Associated forb species included Italian thistle (*Carduus pycnocephalus*) [NL], sharpleaf cancerwort (*Kickxia elatine*)[UPL], doveweed (*Croton setigerus*) [NL], and hawkbit (*Leontodon saxatilis*)[UPL].

Beyond the pond slopes and surrounding open areas are cultivated vineyards as well as a mosaic of woody upland habitats consisting of chaparral, montane hardwood-conifer, and redwood forest. The natural habitats are quite diverse and are dominated by mostly native upland trees, shrubs, and herbaceous understories.

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APPENDIX A:

REPRESENTATIVE PHOTOGRAPHS OF THE PROJECT SITE (from September 22, 2016)

Representative Photographs of the Project Site

Photo #1: Photograph of Pond Habitats, Facing West

Photo #2: Example of Hydric Soils in Wetland Habitat

Representative Photographs of the Project Site

Photo #3: Example of Wetland Hydrology, as Cracking Soils

Photo #4: Transition from Pond Wetland to Upland Hillslope

Representative Photographs of the Project Site

Photo #5: Non-wetland Swale East of Project Site

Photo #6: Non-wetland Swale West of Project Site

APPENDIX B:

WETLAND DELINEATION DATA FORMS

WETLAND DETERMINATION DATA FORM - Arid West Region

Project/Site: Fingerman Property | City/County: Calistoga, Napa County | Sampling Date: 09/22/2016

Applicant/Owner: Mr. Fingerman | State: CA | Sampling Point: 01

Investigator(s): Jake Schweitzer, VNLC | Section, Township, Range: Section 7, Township 08N, Range 06W

Landform (hillslope, terrace, etc.): Berm Slope | Local relief (concave, convex, none): None | Slope (%): 5-10

Subregion (LRR): C - Mediterranean California | Lat: UTM 4267443 | Long: UTM 537564 | Datum: NAD83

Soil Map Unit Name: Forward-Kidd complex (gravelly loam) | NWI classification: N/A

Are climatic / hydrologic conditions on the site typical for this time of year? Yes (●) No ( ) (If no, explain in Remarks.)

Are Vegetation [ ] Soil [ ] or Hydrology [ ] significantly disturbed? Are "Normal Circumstances" present? Yes (●) No ( )

Are Vegetation [ ] Soil [ ] or Hydrology [ ] naturally problematic? (If needed, explain any answers in Remarks.)

SUMMARY OF FINDINGS - Attach site map showing sampling point locations, transects, important features, etc.

Hydrophytic Vegetation Present?	Yes (●)	No ( )	
Hydric Soil Present?	Yes (●)	No ( )	**Is the Sampled Area within a Wetland?** Yes (●) No ( )
Wetland Hydrology Present?	Yes (●)	No ( )	

Remarks:
Seasonal wetland at upper edge of perennial pond, along berm slope

VEGETATION - Use scientific names of plants.

	Absolute % Cover	Dominant Species?	Indicator Status
Tree Stratum Plot size: 25 feet			
1.			
2.			
3.			
4.			
	%		
Sapling/Shrub Stratum Plot size: 15 feet			
1.			
2.			
3.			
4.			
5.			
Total Cover:	%		
Herb Stratum Plot size: 5 feet			
1. *Polypogon maritimus*	7	Yes	OBL
2. *Juncus tenuis*	5	Yes	FACW
3. *Leontodon saxatilis*	2	No	FACU
4. *Croton setigerus*	1	No	Not Listed
5. *Acmispon americanus*	<1	No	UPL
6.			
7.			
8.			
Total Cover:	15 %		
Woody Vine Stratum Plot size: 15 feet			
1.			
2.			
Total Cover:	%		

% Bare Ground in Herb Stratum 85 % % Cover of Biotic Crust %

Dominance Test worksheet:

Number of Dominant Species That Are OBL, FACW, or FAC: 2 (A)

Total Number of Dominant Species Across All Strata: 2 (B)

Percent of Dominant Species That Are OBL, FACW, or FAC: 100.0 % (A/B)

Prevalence Index worksheet:

Total % Cover of:		Multiply by:	
OBL species	7	x 1 =	7
FACW species	5	x 2 =	10
FAC species		x 3 =	0
FACU species	2	x 4 =	8
UPL species	1	x 5 =	5
Column Totals:	15 (A)		30 (B)

Prevalence Index = B/A = 2.00

Hydrophytic Vegetation Indicators:

- [x] Dominance Test is >50%
- [x] Prevalence Index is ≤3.0[1]
- [ ] Morphological Adaptations[1] (Provide supporting data in Remarks or on a separate sheet)
- [ ] Problematic Hydrophytic Vegetation[1] (Explain)

[1]Indicators of hydric soil and wetland hydrology must be present.

Hydrophytic Vegetation Present? Yes (●) No ( )

Remarks: Mix of wetland and upland species on berm slope seasonal wetland.

SOIL

Sampling Point: 01

Profile Description: (Describe to the depth needed to document the indicator or confirm the absence of indicators.)

Depth (inches)	Matrix Color (moist)	Matrix %	Redox Features Color (moist)	Redox Features %	Type[1]	Loc[2]	Texture[3]	Remarks
0-18	10YR 5/2	85	7.5YR 5/6	15	C	M	Loam	Gravelly

[1]Type: C=Concentration, D=Depletion, RM=Reduced Matrix. [2] CS=Covered or Coated Sand Grains. Location: PL=Pore Lining, M=Matrix.
[3]Soil Textures: Clay, Silty Clay, Sandy Clay, Loam, Sandy Clay Loam, Sandy Loam, Clay Loam, Silty Clay Loam, Silt Loam, Silt, Loamy Sand, Sand.

Hydric Soil Indicators: (Applicable to all LRRs, unless otherwise noted.)

- ☐ Histosol (A1)
- ☐ Histic Epipedon (A2)
- ☐ Black Histic (A3)
- ☐ Hydrogen Sulfide (A4)
- ☐ Stratified Layers (A5) (**LRR C**)
- ☐ 1 cm Muck (A9) (**LRR D**)
- ☐ Depleted Below Dark Surface (A11)
- ☐ Thick Dark Surface (A12)
- ☐ Sandy Mucky Mineral (S1)
- ☐ Sandy Gleyed Matrix (S4)
- ☐ Sandy Redox (S5)
- ☐ Stripped Matrix (S6)
- ☐ Loamy Mucky Mineral (F1)
- ☐ Loamy Gleyed Matrix (F2)
- ☒ Depleted Matrix (F3)
- ☐ Redox Dark Surface (F6)
- ☐ Depleted Dark Surface (F7)
- ☐ Redox Depressions (F8)
- ☐ Vernal Pools (F9)

Indicators for Problematic Hydric Soils[4]:

- ☐ 1 cm Muck (A9) (**LRR C**)
- ☐ 2 cm Muck (A10) (**LRR B**)
- ☐ Reduced Vertic (F18)
- ☐ Red Parent Material (TF2)
- ☐ Other (Explain in Remarks)

[4]Indicators of hydrophytic vegetation and wetland hydrology must be present.

Restrictive Layer (if present):

Type: N/A

Depth (inches):

Hydric Soil Present? Yes ◉ No ○

Remarks:

Hydric soils

HYDROLOGY

Wetland Hydrology Indicators:

Primary Indicators (any one indicator is sufficient)

- ☐ Surface Water (A1)
- ☐ High Water Table (A2)
- ☐ Saturation (A3)
- ☒ Water Marks (B1) (**Nonriverine**)
- ☐ Sediment Deposits (B2) (**Nonriverine**)
- ☐ Drift Deposits (B3) (**Nonriverine**)
- ☐ Surface Soil Cracks (B6)
- ☐ Inundation Visible on Aerial Imagery (B7)
- ☐ Water-Stained Leaves (B9)
- ☐ Salt Crust (B11)
- ☐ Biotic Crust (B12)
- ☐ Aquatic Invertebrates (B13)
- ☐ Hydrogen Sulfide Odor (C1)
- ☐ Oxidized Rhizospheres along Living Roots (C3)
- ☐ Presence of Reduced Iron (C4)
- ☐ Recent Iron Reduction in Tilled Soils (C6)
- ☐ Thin Muck Surface (C7)
- ☐ Other (Explain in Remarks)

Secondary Indicators (2 or more required)

- ☐ Water Marks (B1) (**Riverine**)
- ☐ Sediment Deposits (B2) (**Riverine**)
- ☐ Drift Deposits (B3) (**Riverine**)
- ☐ Drainage Patterns (B10)
- ☐ Dry-Season Water Table (C2)
- ☐ Crayfish Burrows (C8)
- ☐ Saturation Visible on Aerial Imagery (C9)
- ☐ Shallow Aquitard (D3)
- ☐ FAC-Neutral Test (D5)

Field Observations:

Surface Water Present? Yes ○ No ◉ Depth (inches):

Water Table Present? Yes ○ No ◉ Depth (inches):

Saturation Present? (includes capillary fringe) Yes ○ No ◉ Depth (inches):

Wetland Hydrology Present? Yes ◉ No ○

Describe Recorded Data (stream gauge, monitoring well, aerial photos, previous inspections), if available:

Remarks: Animal tracks/hoof prints also present as indicators.

WETLAND DETERMINATION DATA FORM - Arid West Region

Project/Site: Fingerman Property City/County: Calistoga, Napa County Sampling Date: 09/22/2016

Applicant/Owner: Mr. Fingerman State: CA Sampling Point: 02

Investigator(s): Jake Schweitzer, VNLC Section, Township, Range: Section 7, Township 08N, Range 06W

Landform (hillslope, terrace, etc.): Berm Slope Local relief (concave, convex, none): None Slope (%): 5-10

Subregion (LRR): C - Mediterranean California Lat: UTM 4267446 Long: UTM 537566 Datum: NAD83

Soil Map Unit Name: Forward-Kidd complex (gravelly loam) NWI classification: N/A

Are climatic / hydrologic conditions on the site typical for this time of year? Yes (•) No ( ) (If no, explain in Remarks.)

Are Vegetation [ ] Soil [ ] or Hydrology [ ] significantly disturbed? Are "Normal Circumstances" present? Yes (•) No ( )

Are Vegetation [ ] Soil [ ] or Hydrology [ ] naturally problematic? (If needed, explain any answers in Remarks.)

SUMMARY OF FINDINGS - Attach site map showing sampling point locations, transects, important features, etc.

Hydrophytic Vegetation Present?	Yes ( )	No (•)	
Hydric Soil Present?	Yes ( )	No (•)	**Is the Sampled Area within a Wetland?** Yes ( ) No (•)
Wetland Hydrology Present?	Yes ( )	No (•)	

Remarks:

Upper berm slope above point 01.

VEGETATION - Use scientific names of plants.

	Absolute % Cover	Dominant Species?	Indicator Status
Tree Stratum Plot size: 25 feet			
1.			
2.			
3.			
4.			
	%		
Sapling/Shrub Stratum Plot size: 15 feet			
1.			
2.			
3.			
4.			
5.			
Total Cover:	%		
Herb Stratum Plot size: 5 feet			
1. *Leontodon saxatilis*	6	Yes	FACU
2. *Croton setigerus*	5	Yes	Not Listed
3. *Gastridium phleoides*	3	No	FACU
4. *Polypogon maritimus*	2	No	OBL
5. *Acmispon americanus*	<1	No	UPL
6.			
7.			
8.			
Total Cover:	16 %		
Woody Vine Stratum Plot size: 15 feet			
1.			
2.			
Total Cover:	%		

% Bare Ground in Herb Stratum 84 % % Cover of Biotic Crust %

Dominance Test worksheet:

Number of Dominant Species That Are OBL, FACW, or FAC: 0 (A)

Total Number of Dominant Species Across All Strata: 2 (B)

Percent of Dominant Species That Are OBL, FACW, or FAC: 0.0 % (A/B)

Prevalence Index worksheet:

Total % Cover of:		Multiply by:	
OBL species	2	x 1 =	2
FACW species		x 2 =	0
FAC species		x 3 =	0
FACU species	9	x 4 =	36
UPL species	5	x 5 =	25
Column Totals:	16 (A)		63 (B)

Prevalence Index = B/A = 3.94

Hydrophytic Vegetation Indicators:

- (•) Dominance Test is >50%
- (•) Prevalence Index is ≤3.0[1]
- [ ] Morphological Adaptations[1] (Provide supporting data in Remarks or on a separate sheet)
- [ ] Problematic Hydrophytic Vegetation[1] (Explain)

[1]Indicators of hydric soil and wetland hydrology must be present.

Hydrophytic Vegetation Present? Yes ( ) No (•)

Remarks: Upland habitat at upper edge of berm slope.

SOIL

Sampling Point: 02

Profile Description: (Describe to the depth needed to document the indicator or confirm the absence of indicators.)

Depth (inches)	Matrix Color (moist)	Matrix %	Redox Features Color (moist)	Redox Features %	Type[1]	Loc[2]	Texture[3]	Remarks
0-18	10YR 5/2	100					Loam	Gravelly

[1]Type: C=Concentration, D=Depletion, RM=Reduced Matrix. [2] CS=Covered or Coated Sand Grains. Location: PL=Pore Lining, M=Matrix.
[3]Soil Textures: Clay, Silty Clay, Sandy Clay, Loam, Sandy Clay Loam, Sandy Loam, Clay Loam, Silty Clay Loam, Silt Loam, Silt, Loamy Sand, Sand.

Hydric Soil Indicators: (Applicable to all LRRs, unless otherwise noted.)

- ☐ Histosol (A1)
- ☐ Histic Epipedon (A2)
- ☐ Black Histic (A3)
- ☐ Hydrogen Sulfide (A4)
- ☐ Stratified Layers (A5) (**LRR C**)
- ☐ 1 cm Muck (A9) (**LRR D**)
- ☐ Depleted Below Dark Surface (A11)
- ☐ Thick Dark Surface (A12)
- ☐ Sandy Mucky Mineral (S1)
- ☐ Sandy Gleyed Matrix (S4)
- ☐ Sandy Redox (S5)
- ☐ Stripped Matrix (S6)
- ☐ Loamy Mucky Mineral (F1)
- ☐ Loamy Gleyed Matrix (F2)
- ☐ Depleted Matrix (F3)
- ☐ Redox Dark Surface (F6)
- ☐ Depleted Dark Surface (F7)
- ☐ Redox Depressions (F8)
- ☐ Vernal Pools (F9)

Indicators for Problematic Hydric Soils:[4]

- ☐ 1 cm Muck (A9) (**LRR C**)
- ☐ 2 cm Muck (A10) (**LRR B**)
- ☐ Reduced Vertic (F18)
- ☐ Red Parent Material (TF2)
- ☐ Other (Explain in Remarks)

[4]Indicators of hydrophytic vegetation and wetland hydrology must be present.

Restrictive Layer (if present):

Type: N/A

Depth (inches):

Hydric Soil Present? Yes ○ No ◉

Remarks:

Not hydric soils

HYDROLOGY

Wetland Hydrology Indicators:

Primary Indicators (any one indicator is sufficient)

- ☐ Surface Water (A1)
- ☐ High Water Table (A2)
- ☐ Saturation (A3)
- ☐ Water Marks (B1) (**Nonriverine**)
- ☐ Sediment Deposits (B2) (**Nonriverine**)
- ☐ Drift Deposits (B3) (**Nonriverine**)
- ☐ Surface Soil Cracks (B6)
- ☐ Inundation Visible on Aerial Imagery (B7)
- ☐ Water-Stained Leaves (B9)
- ☐ Salt Crust (B11)
- ☐ Biotic Crust (B12)
- ☐ Aquatic Invertebrates (B13)
- ☐ Hydrogen Sulfide Odor (C1)
- ☐ Oxidized Rhizospheres along Living Roots (C3)
- ☐ Presence of Reduced Iron (C4)
- ☐ Recent Iron Reduction in Tilled Soils (C6)
- ☐ Thin Muck Surface (C7)
- ☐ Other (Explain in Remarks)

Secondary Indicators (2 or more required)

- ☐ Water Marks (B1) (**Riverine**)
- ☐ Sediment Deposits (B2) (**Riverine**)
- ☐ Drift Deposits (B3) (**Riverine**)
- ☐ Drainage Patterns (B10)
- ☐ Dry-Season Water Table (C2)
- ☐ Crayfish Burrows (C8)
- ☐ Saturation Visible on Aerial Imagery (C9)
- ☐ Shallow Aquitard (D3)
- ☐ FAC-Neutral Test (D5)

Field Observations:

Surface Water Present? Yes ○ No ◉ Depth (inches):

Water Table Present? Yes ○ No ◉ Depth (inches):

Saturation Present? (includes capillary fringe) Yes ○ No ◉ Depth (inches):

Wetland Hydrology Present? Yes ○ No ◉

Describe Recorded Data (stream gauge, monitoring well, aerial photos, previous inspections), if available:

Remarks: No indicators of wetland hydrology.

WETLAND DETERMINATION DATA FORM - Arid West Region

Project/Site: Fingerman Property | City/County: Calistoga, Napa County | Sampling Date: 09/22/2016

Applicant/Owner: Mr. Fingerman | State: CA | Sampling Point: 03

Investigator(s): Jake Schweitzer, VNLC | Section, Township, Range: Section 7, Township 08N, Range 06W

Landform (hillslope, terrace, etc.): Hillslope | Local relief (concave, convex, none): None | Slope (%): 1-5

Subregion (LRR): C - Mediterranean California | Lat: UTM 4267417 | Long: UTM 537474 | Datum: NAD83

Soil Map Unit Name: Forward-Kidd complex (gravelly loam) | NWI classification: N/A

Are climatic / hydrologic conditions on the site typical for this time of year? Yes (●) No ( ) (If no, explain in Remarks.)

Are Vegetation [ ] Soil [ ] or Hydrology [ ] significantly disturbed? Are "Normal Circumstances" present? Yes (●) No ( )

Are Vegetation [ ] Soil [ ] or Hydrology [ ] naturally problematic? (If needed, explain any answers in Remarks.)

SUMMARY OF FINDINGS - Attach site map showing sampling point locations, transects, important features, etc.

Hydrophytic Vegetation Present?	Yes (●)	No ( )	
Hydric Soil Present?	Yes (●)	No ( )	**Is the Sampled Area within a Wetland?** Yes (●) No ( )
Wetland Hydrology Present?	Yes (●)	No ( )	

Remarks:
Pond hill slope seasonal wetland.

VEGETATION - Use scientific names of plants.

	Absolute % Cover	Dominant Species?	Indicator Status
Tree Stratum Plot size: 25 feet			
1.			
2.			
3.			
4.			
	%		
Sapling/Shrub Stratum Plot size: 15 feet			
1.			
2.			
3.			
4.			
5.			
Total Cover:	%		
Herb Stratum Plot size: 5 feet			
1. *Eleocharis macrostachya*	10	Yes	OBL
2. *Juncus tenuis*	7	Yes	FACW
3. *Alisma triviale*	3	No	OBL
4. *Croton setigerus*	<1	No	Not Listed
5. *Polypogon maritimus*	1	No	OBL
6.			
7.			
8.			
Total Cover:	21 %		
Woody Vine Stratum Plot size: 15 feet			
1.			
2.			
Total Cover:	%		

% Bare Ground in Herb Stratum 79 % % Cover of Biotic Crust %

Dominance Test worksheet:

Number of Dominant Species That Are OBL, FACW, or FAC: 2 (A)

Total Number of Dominant Species Across All Strata: 2 (B)

Percent of Dominant Species That Are OBL, FACW, or FAC: 100.0 % (A/B)

Prevalence Index worksheet:

Total % Cover of:		Multiply by:	
OBL species	14	x 1 =	14
FACW species	7	x 2 =	14
FAC species		x 3 =	0
FACU species		x 4 =	0
UPL species	0	x 5 =	0
Column Totals:	21 (A)		28 (B)

Prevalence Index = B/A = 1.33

Hydrophytic Vegetation Indicators:

- [X] Dominance Test is >50%
- [X] Prevalence Index is ≤3.0[1]
- [ ] Morphological Adaptations[1] (Provide supporting data in Remarks or on a separate sheet)
- [ ] Problematic Hydrophytic Vegetation[1] (Explain)

[1]Indicators of hydric soil and wetland hydrology must be present.

Hydrophytic Vegetation Present? Yes (●) No ( )

Remarks: Dominated by wetland plants. Eucalyptus camaldulensis just beyond 25 feet, at upper slope edge.

SOIL

Sampling Point: 03

Profile Description: (Describe to the depth needed to document the indicator or confirm the absence of indicators.)

Depth (inches)	Matrix Color (moist)	Matrix %	Redox Features Color (moist)	Redox Features %	Type[1]	Loc[2]	Texture[3]	Remarks
0-6	10YR 5/2	80	7.5YR 6/8	20	C	PL	Silt	Gravelly chaparral soils
6-18	10YR 5/2	100					Silt loam	Gravelly

[1]Type: C=Concentration, D=Depletion, RM=Reduced Matrix. [2] CS=Covered or Coated Sand Grains. Location: PL=Pore Lining, M=Matrix.
[3]Soil Textures: Clay, Silty Clay, Sandy Clay, Loam, Sandy Clay Loam, Sandy Loam, Clay Loam, Silty Clay Loam, Silt Loam, Silt, Loamy Sand, Sand.

Hydric Soil Indicators: (Applicable to all LRRs, unless otherwise noted.)

- ☐ Histosol (A1)
- ☐ Histic Epipedon (A2)
- ☐ Black Histic (A3)
- ☐ Hydrogen Sulfide (A4)
- ☐ Stratified Layers (A5) (**LRR C**)
- ☐ 1 cm Muck (A9) (**LRR D**)
- ☐ Depleted Below Dark Surface (A11)
- ☐ Thick Dark Surface (A12)
- ☐ Sandy Mucky Mineral (S1)
- ☐ Sandy Gleyed Matrix (S4)
- ☐ Sandy Redox (S5)
- ☐ Stripped Matrix (S6)
- ☐ Loamy Mucky Mineral (F1)
- ☐ Loamy Gleyed Matrix (F2)
- ☒ Depleted Matrix (F3)
- ☐ Redox Dark Surface (F6)
- ☐ Depleted Dark Surface (F7)
- ☐ Redox Depressions (F8)
- ☐ Vernal Pools (F9)

Indicators for Problematic Hydric Soils[4]:

- ☐ 1 cm Muck (A9) (**LRR C**)
- ☐ 2 cm Muck (A10) (**LRR B**)
- ☐ Reduced Vertic (F18)
- ☐ Red Parent Material (TF2)
- ☐ Other (Explain in Remarks)

[4]Indicators of hydrophytic vegetation and wetland hydrology must be present.

Restrictive Layer (if present):

Type: N/A

Depth (inches):

Hydric Soil Present? Yes ◉ No ○

Remarks:

Eucalyptus leaves abundant

HYDROLOGY

Wetland Hydrology Indicators:

Primary Indicators (any one indicator is sufficient)

- ☐ Surface Water (A1)
- ☐ High Water Table (A2)
- ☐ Saturation (A3)
- ☒ Water Marks (B1) (**Nonriverine**)
- ☐ Sediment Deposits (B2) (**Nonriverine**)
- ☐ Drift Deposits (B3) (**Nonriverine**)
- ☒ Surface Soil Cracks (B6)
- ☐ Inundation Visible on Aerial Imagery (B7)
- ☐ Water-Stained Leaves (B9)
- ☐ Salt Crust (B11)
- ☐ Biotic Crust (B12)
- ☐ Aquatic Invertebrates (B13)
- ☐ Hydrogen Sulfide Odor (C1)
- ☐ Oxidized Rhizospheres along Living Roots (C3)
- ☐ Presence of Reduced Iron (C4)
- ☐ Recent Iron Reduction in Tilled Soils (C6)
- ☐ Thin Muck Surface (C7)
- ☐ Other (Explain in Remarks)

Secondary Indicators (2 or more required)

- ☐ Water Marks (B1) (**Riverine**)
- ☐ Sediment Deposits (B2) (**Riverine**)
- ☐ Drift Deposits (B3) (**Riverine**)
- ☐ Drainage Patterns (B10)
- ☐ Dry-Season Water Table (C2)
- ☐ Crayfish Burrows (C8)
- ☐ Saturation Visible on Aerial Imagery (C9)
- ☐ Shallow Aquitard (D3)
- ☐ FAC-Neutral Test (D5)

Field Observations:

Surface Water Present? Yes ○ No ◉ Depth (inches):

Water Table Present? Yes ○ No ◉ Depth (inches):

Saturation Present? (includes capillary fringe) Yes ○ No ◉ Depth (inches):

Wetland Hydrology Present? Yes ◉ No ○

Describe Recorded Data (stream gauge, monitoring well, aerial photos, previous inspections), if available:

Remarks: Clear wetland hydrology.

WETLAND DETERMINATION DATA FORM - Arid West Region

Project/Site: Fingerman Property City/County: Calistoga, Napa County Sampling Date: 09/22/2016

Applicant/Owner: Mr. Fingerman State: CA Sampling Point: 04

Investigator(s): Jake Schweitzer, VNLC Section, Township, Range: Section 7, Township 08N, Range 06W

Landform (hillslope, terrace, etc.): Hillslope Local relief (concave, convex, none): Convex Slope (%): 10-20

Subregion (LRR): C - Mediterranean California Lat: UTM 4267419 Long: UTM 537472 Datum: NAD83

Soil Map Unit Name: Forward-Kidd complex (gravelly loam) NWI classification: N/A

Are climatic / hydrologic conditions on the site typical for this time of year? Yes (•) No ( ) (If no, explain in Remarks.)

Are Vegetation [ ] Soil [ ] or Hydrology [ ] significantly disturbed? Are "Normal Circumstances" present? Yes (•) No ( )

Are Vegetation [ ] Soil [ ] or Hydrology [ ] naturally problematic? (If needed, explain any answers in Remarks.)

SUMMARY OF FINDINGS - Attach site map showing sampling point locations, transects, important features, etc.

Hydrophytic Vegetation Present?	Yes ( )	No (•)	
Hydric Soil Present?	Yes ( )	No (•)	**Is the Sampled Area within a Wetland?** Yes ( ) No (•)
Wetland Hydrology Present?	Yes ( )	No (•)	

Remarks:

Upper hillslope above point 03.

VEGETATION - Use scientific names of plants.

	Absolute % Cover	Dominant Species?	Indicator Status
Tree Stratum Plot size: 25 feet			
1.			
2.			
3.			
4.			
	%		
Sapling/Shrub Stratum Plot size: 15 feet			
1.			
2.			
3.			
4.			
5.			
Total Cover:	%		
Herb Stratum Plot size: 5 feet			
1. *Gastridium phleoides*	15	Yes	FACU
2. *Leontodon saxatilis*	5	Yes	FACU
3. *Juncus bufonius*	<1	No	FACW
4. *Polypogon maritimus*	<1	No	OBL
5. *Pseudognaphalium californicum*	<1	No	Not Listed
6.			
7.			
8.			
Total Cover:	20 %		
Woody Vine Stratum Plot size: 15 feet			
1.			
2.			
Total Cover:	%		

% Bare Ground in Herb Stratum 80 % % Cover of Biotic Crust %

Dominance Test worksheet:

Number of Dominant Species That Are OBL, FACW, or FAC: 0 (A)

Total Number of Dominant Species Across All Strata: 2 (B)

Percent of Dominant Species That Are OBL, FACW, or FAC: 0.0 % (A/B)

Prevalence Index worksheet:

Total % Cover of:		Multiply by:	
OBL species	0	x 1 =	0
FACW species	0	x 2 =	0
FAC species		x 3 =	0
FACU species	20	x 4 =	80
UPL species	0	x 5 =	0
Column Totals:	20 (A)		80 (B)

Prevalence Index = B/A = 4.00

Hydrophytic Vegetation Indicators:

- (•) Dominance Test is >50%
- (•) Prevalence Index is ≤3.0[1]
- [ ] Morphological Adaptations[1] (Provide supporting data in Remarks or on a separate sheet)
- [ ] Problematic Hydrophytic Vegetation[1] (Explain)

[1]Indicators of hydric soil and wetland hydrology must be present.

Hydrophytic Vegetation Present? Yes ( ) No (•)

Remarks: Upland habitat at upper edge of berm slope.

SOIL

Sampling Point: 04

Profile Description: (Describe to the depth needed to document the indicator or confirm the absence of indicators.)

Depth (inches)	Matrix Color (moist)	Matrix %	Redox Features Color (moist)	Redox Features %	Type[1]	Loc[2]	Texture[3]	Remarks
0-18	10YR 5/2	100					Sandy Loam	Very Gravelly

[1]Type: C=Concentration, D=Depletion, RM=Reduced Matrix. [2] CS=Covered or Coated Sand Grains. Location: PL=Pore Lining, M=Matrix.
[3]Soil Textures: Clay, Silty Clay, Sandy Clay, Loam, Sandy Clay Loam, Sandy Loam, Clay Loam, Silty Clay Loam, Silt Loam, Silt, Loamy Sand, Sand.

Hydric Soil Indicators: (Applicable to all LRRs, unless otherwise noted.)

- ☐ Histosol (A1)
- ☐ Histic Epipedon (A2)
- ☐ Black Histic (A3)
- ☐ Hydrogen Sulfide (A4)
- ☐ Stratified Layers (A5) (**LRR C**)
- ☐ 1 cm Muck (A9) (**LRR D**)
- ☐ Depleted Below Dark Surface (A11)
- ☐ Thick Dark Surface (A12)
- ☐ Sandy Mucky Mineral (S1)
- ☐ Sandy Gleyed Matrix (S4)
- ☐ Sandy Redox (S5)
- ☐ Stripped Matrix (S6)
- ☐ Loamy Mucky Mineral (F1)
- ☐ Loamy Gleyed Matrix (F2)
- ☐ Depleted Matrix (F3)
- ☐ Redox Dark Surface (F6)
- ☐ Depleted Dark Surface (F7)
- ☐ Redox Depressions (F8)
- ☐ Vernal Pools (F9)

Indicators for Problematic Hydric Soils:[4]

- ☐ 1 cm Muck (A9) (**LRR C**)
- ☐ 2 cm Muck (A10) (**LRR B**)
- ☐ Reduced Vertic (F18)
- ☐ Red Parent Material (TF2)
- ☐ Other (Explain in Remarks)

[4]Indicators of hydrophytic vegetation and wetland hydrology must be present.

Restrictive Layer (if present):

Type: N/A

Depth (inches):

Hydric Soil Present? Yes ○ No ◉

Remarks:

Not hydric soils

HYDROLOGY

Wetland Hydrology Indicators:

Primary Indicators (any one indicator is sufficient)

- ☐ Surface Water (A1)
- ☐ High Water Table (A2)
- ☐ Saturation (A3)
- ☐ Water Marks (B1) (**Nonriverine**)
- ☐ Sediment Deposits (B2) (**Nonriverine**)
- ☐ Drift Deposits (B3) (**Nonriverine**)
- ☐ Surface Soil Cracks (B6)
- ☐ Inundation Visible on Aerial Imagery (B7)
- ☐ Water-Stained Leaves (B9)
- ☐ Salt Crust (B11)
- ☐ Biotic Crust (B12)
- ☐ Aquatic Invertebrates (B13)
- ☐ Hydrogen Sulfide Odor (C1)
- ☐ Oxidized Rhizospheres along Living Roots (C3)
- ☐ Presence of Reduced Iron (C4)
- ☐ Recent Iron Reduction in Tilled Soils (C6)
- ☐ Thin Muck Surface (C7)
- ☐ Other (Explain in Remarks)

Secondary Indicators (2 or more required)

- ☐ Water Marks (B1) (**Riverine**)
- ☐ Sediment Deposits (B2) (**Riverine**)
- ☐ Drift Deposits (B3) (**Riverine**)
- ☐ Drainage Patterns (B10)
- ☐ Dry-Season Water Table (C2)
- ☐ Crayfish Burrows (C8)
- ☐ Saturation Visible on Aerial Imagery (C9)
- ☐ Shallow Aquitard (D3)
- ☐ FAC-Neutral Test (D5)

Field Observations:

Surface Water Present? Yes ○ No ◉ Depth (inches):

Water Table Present? Yes ○ No ◉ Depth (inches):

Saturation Present? (includes capillary fringe) Yes ○ No ◉ Depth (inches):

Wetland Hydrology Present? Yes ○ No ◉

Describe Recorded Data (stream gauge, monitoring well, aerial photos, previous inspections), if available:

Remarks: No indicators of wetland hydrology.

WETLAND DETERMINATION DATA FORM - Arid West Region

Project/Site: Fingerman Property City/County: Calistoga, Napa County Sampling Date: 09/22/2016

Applicant/Owner: Mr. Fingerman State: CA Sampling Point: 05

Investigator(s): Jake Schweitzer, VNLC Section, Township, Range: Section 7, Township 08N, Range 06W

Landform (hillslope, terrace, etc.): Pond Edge Local relief (concave, convex, none): None Slope (%): 1-5

Subregion (LRR): C - Mediterranean California Lat: UTM 4267376 Long: UTM 537443 Datum: NAD83

Soil Map Unit Name: Forward-Kidd complex (gravelly loam) NWI classification: N/A

Are climatic / hydrologic conditions on the site typical for this time of year? Yes (•) No ( ) (If no, explain in Remarks.)

Are Vegetation [ ] Soil [ ] or Hydrology [ ] significantly disturbed? Are "Normal Circumstances" present? Yes (•) No ( )

Are Vegetation [ ] Soil [ ] or Hydrology [ ] naturally problematic? (If needed, explain any answers in Remarks.)

SUMMARY OF FINDINGS - Attach site map showing sampling point locations, transects, important features, etc.

Hydrophytic Vegetation Present?	Yes (•)	No ( )		
Hydric Soil Present?	Yes (•)	No ( )	**Is the Sampled Area within a Wetland?**	**Yes (•) No ( )**
Wetland Hydrology Present?	Yes (•)	No ( )		

Remarks:
Seasonal wetland at edge of pond.

VEGETATION - Use scientific names of plants.

Tree Stratum Plot size: 25 feet	Absolute % Cover	Dominant Species?	Indicator Status
1.			
2.			
3.			
4.			
	%		
Sapling/Shrub Stratum Plot size: 15 feet			
1.			
2.			
3.			
4.			
5.			
Total Cover:	%		
Herb Stratum Plot size: 5 feet			
1. *Hordeum marinum ssp. gussoneanum*	40	Yes	FAC
2. *Festuca perennis*	10	No	FAC
3. *Bromus hordeaceus*	10	No	FACU
4. *Croton setigerus*	3	No	Not Listed
5. *Lythrum hyssopifolium*	2	No	OBL
6. *Cyperus eragrostis*	<1	No	FACW
7.			
8.			
Total Cover:	65 %		
Woody Vine Stratum Plot size: 15 feet			
1.			
2.			
Total Cover:	%		

% Bare Ground in Herb Stratum 35 % % Cover of Biotic Crust %

Dominance Test worksheet:

Number of Dominant Species That Are OBL, FACW, or FAC: 1 (A)

Total Number of Dominant Species Across All Strata: 1 (B)

Percent of Dominant Species That Are OBL, FACW, or FAC: 100.0 % (A/B)

Prevalence Index worksheet:

Total % Cover of:		Multiply by:	
OBL species	2	x 1 =	2
FACW species	0	x 2 =	0
FAC species	50	x 3 =	150
FACU species	10	x 4 =	40
UPL species	3	x 5 =	15
Column Totals:	65 (A)		207 (B)

Prevalence Index = B/A = 3.18

Hydrophytic Vegetation Indicators:

- [X] Dominance Test is >50%
- [ ] Prevalence Index is ≤3.0[1]
- [ ] Morphological Adaptations[1] (Provide supporting data in Remarks or on a separate sheet)
- [ ] Problematic Hydrophytic Vegetation[1] (Explain)

[1]Indicators of hydric soil and wetland hydrology must be present.

Hydrophytic Vegetation Present? Yes (•) No ( )

Remarks: Dominated by seasonal wetland vegetation.

SOIL

Sampling Point: 05

Profile Description: (Describe to the depth needed to document the indicator or confirm the absence of indicators.)

Depth (inches)	Matrix Color (moist)	Matrix %	Redox Features Color (moist)	Redox Features %	Type[1]	Loc[2]	Texture[3]	Remarks
0-4	10YR 5/2	80	7.5YR 5/8	20	C	PL	Silty Clay Loam	
4-12	10YR 5/2	100					Loamy Sand	Gravelly

[1]Type: C=Concentration, D=Depletion, RM=Reduced Matrix. [2] CS=Covered or Coated Sand Grains. Location: PL=Pore Lining, M=Matrix.
[3]Soil Textures: Clay, Silty Clay, Sandy Clay, Loam, Sandy Clay Loam, Sandy Loam, Clay Loam, Silty Clay Loam, Silt Loam, Silt, Loamy Sand, Sand.

Hydric Soil Indicators: (Applicable to all LRRs, unless otherwise noted.)

- ☐ Histosol (A1)
- ☐ Histic Epipedon (A2)
- ☐ Black Histic (A3)
- ☐ Hydrogen Sulfide (A4)
- ☐ Stratified Layers (A5) (**LRR C**)
- ☐ 1 cm Muck (A9) (**LRR D**)
- ☐ Depleted Below Dark Surface (A11)
- ☐ Thick Dark Surface (A12)
- ☐ Sandy Mucky Mineral (S1)
- ☐ Sandy Gleyed Matrix (S4)
- ☐ Sandy Redox (S5)
- ☐ Stripped Matrix (S6)
- ☐ Loamy Mucky Mineral (F1)
- ☐ Loamy Gleyed Matrix (F2)
- ☒ Depleted Matrix (F3)
- ☐ Redox Dark Surface (F6)
- ☐ Depleted Dark Surface (F7)
- ☐ Redox Depressions (F8)
- ☐ Vernal Pools (F9)

Indicators for Problematic Hydric Soils[4]:

- ☐ 1 cm Muck (A9) (**LRR C**)
- ☐ 2 cm Muck (A10) (**LRR B**)
- ☐ Reduced Vertic (F18)
- ☐ Red Parent Material (TF2)
- ☐ Other (Explain in Remarks)

[4]Indicators of hydrophytic vegetation and wetland hydrology must be present.

Restrictive Layer (if present):

Type: Gravel

Depth (inches): 12

Hydric Soil Present? Yes ◉ No ○

Remarks:

Too gravelly to dig beyond 12"

HYDROLOGY

Wetland Hydrology Indicators:

Primary Indicators (any one indicator is sufficient)

- ☐ Surface Water (A1)
- ☐ High Water Table (A2)
- ☐ Saturation (A3)
- ☐ Water Marks (B1) (**Nonriverine**)
- ☐ Sediment Deposits (B2) (**Nonriverine**)
- ☐ Drift Deposits (B3) (**Nonriverine**)
- ☒ Surface Soil Cracks (B6)
- ☐ Inundation Visible on Aerial Imagery (B7)
- ☐ Water-Stained Leaves (B9)
- ☐ Salt Crust (B11)
- ☐ Biotic Crust (B12)
- ☐ Aquatic Invertebrates (B13)
- ☐ Hydrogen Sulfide Odor (C1)
- ☐ Oxidized Rhizospheres along Living Roots (C3)
- ☐ Presence of Reduced Iron (C4)
- ☐ Recent Iron Reduction in Tilled Soils (C6)
- ☐ Thin Muck Surface (C7)
- ☐ Other (Explain in Remarks)

Secondary Indicators (2 or more required)

- ☐ Water Marks (B1) (**Riverine**)
- ☐ Sediment Deposits (B2) (**Riverine**)
- ☐ Drift Deposits (B3) (**Riverine**)
- ☐ Drainage Patterns (B10)
- ☐ Dry-Season Water Table (C2)
- ☐ Crayfish Burrows (C8)
- ☐ Saturation Visible on Aerial Imagery (C9)
- ☐ Shallow Aquitard (D3)
- ☐ FAC-Neutral Test (D5)

Field Observations:

Surface Water Present? Yes ○ No ◉ Depth (inches):

Water Table Present? Yes ○ No ◉ Depth (inches):

Saturation Present? (includes capillary fringe) Yes ○ No ◉ Depth (inches):

Wetland Hydrology Present? Yes ◉ No ○

Describe Recorded Data (stream gauge, monitoring well, aerial photos, previous inspections), if available:

Remarks: Water-stained thatch also evident.

WETLAND DETERMINATION DATA FORM - Arid West Region

Project/Site: Fingerman Property | City/County: Calistoga, Napa County | Sampling Date: 09/22/2016

Applicant/Owner: Mr. Fingerman | State: CA | Sampling Point: 06

Investigator(s): Jake Schweitzer, VNLC | Section, Township, Range: Section 7, Township 08N, Range 06W

Landform (hillslope, terrace, etc.): Hillslope | Local relief (concave, convex, none): Convex | Slope (%): 5-10

Subregion (LRR): C - Mediterranean California | Lat: UTM 4267376 | Long: UTM 537440 | Datum: NAD83

Soil Map Unit Name: Forward-Kidd complex (gravelly loam) | NWI classification: N/A

Are climatic / hydrologic conditions on the site typical for this time of year? Yes (●) No ( ) (If no, explain in Remarks.)

Are Vegetation [ ] Soil [ ] or Hydrology [ ] significantly disturbed? Are "Normal Circumstances" present? Yes (●) No ( )

Are Vegetation [ ] Soil [ ] or Hydrology [ ] naturally problematic? (If needed, explain any answers in Remarks.)

SUMMARY OF FINDINGS - Attach site map showing sampling point locations, transects, important features, etc.

Hydrophytic Vegetation Present?	Yes ( )	No (●)		
Hydric Soil Present?	Yes ( )	No (●)	**Is the Sampled Area within a Wetland?**	**Yes ( ) No (●)**
Wetland Hydrology Present?	Yes ( )	No (●)		

Remarks:

Gentle grassland slope above point 05.

VEGETATION - Use scientific names of plants.

Tree Stratum Plot size: 25 feet	Absolute % Cover	Dominant Species?	Indicator Status
1.			
2.			
3.			
4.			
	%		
Sapling/Shrub Stratum Plot size: 15 feet			
1.			
2.			
3.			
4.			
5.			
Total Cover:	%		
Herb Stratum Plot size: 5 feet			
1. *Bromus hordeaceus*	55	Yes	FACU
2. *Hordeum marinum ssp. gussoneanum*	10	No	FAC
3. *Croton setigerus*	5	No	Not Listed
4. *Avena fatua*	1	No	Not Listed
5.			
6.			
7.			
8.			
Total Cover:	71 %		
Woody Vine Stratum Plot size: 15 feet			
1.			
2.			
Total Cover:	%		

% Bare Ground in Herb Stratum 29 % % Cover of Biotic Crust %

Dominance Test worksheet:

Number of Dominant Species That Are OBL, FACW, or FAC: 0 (A)

Total Number of Dominant Species Across All Strata: 1 (B)

Percent of Dominant Species That Are OBL, FACW, or FAC: 0.0 % (A/B)

Prevalence Index worksheet:

Total % Cover of:		Multiply by:	
OBL species		x 1 =	0
FACW species		x 2 =	0
FAC species	10	x 3 =	30
FACU species	55	x 4 =	220
UPL species	6	x 5 =	30
Column Totals:	71 (A)		280 (B)

Prevalence Index = B/A = 3.94

Hydrophytic Vegetation Indicators:

- [ ] Dominance Test is >50%
- [ ] Prevalence Index is ≤3.0[1]
- [ ] Morphological Adaptations[1] (Provide supporting data in Remarks or on a separate sheet)
- [ ] Problematic Hydrophytic Vegetation[1] (Explain)

[1]Indicators of hydric soil and wetland hydrology must be present.

Hydrophytic Vegetation Present? Yes ( ) No (●)

Remarks: Upland habitat at upper edge of berm slope.

SOIL

Sampling Point: 06

Profile Description: (Describe to the depth needed to document the indicator or confirm the absence of indicators.)

Depth (inches)	Matrix Color (moist)	Matrix %	Redox Features Color (moist)	Redox Features %	Type[1]	Loc[2]	Texture[3]	Remarks
0-12	10YR 5/2	100					Sandy Loam	Gravelly

[1]Type: C=Concentration, D=Depletion, RM=Reduced Matrix. [2] CS=Covered or Coated Sand Grains. Location: PL=Pore Lining, M=Matrix.
[3]Soil Textures: Clay, Silty Clay, Sandy Clay, Loam, Sandy Clay Loam, Sandy Loam, Clay Loam, Silty Clay Loam, Silt Loam, Silt, Loamy Sand, Sand.

Hydric Soil Indicators: (Applicable to all LRRs, unless otherwise noted.)

- ☐ Histosol (A1)
- ☐ Histic Epipedon (A2)
- ☐ Black Histic (A3)
- ☐ Hydrogen Sulfide (A4)
- ☐ Stratified Layers (A5) (**LRR C**)
- ☐ 1 cm Muck (A9) (**LRR D**)
- ☐ Depleted Below Dark Surface (A11)
- ☐ Thick Dark Surface (A12)
- ☐ Sandy Mucky Mineral (S1)
- ☐ Sandy Gleyed Matrix (S4)
- ☐ Sandy Redox (S5)
- ☐ Stripped Matrix (S6)
- ☐ Loamy Mucky Mineral (F1)
- ☐ Loamy Gleyed Matrix (F2)
- ☐ Depleted Matrix (F3)
- ☐ Redox Dark Surface (F6)
- ☐ Depleted Dark Surface (F7)
- ☐ Redox Depressions (F8)
- ☐ Vernal Pools (F9)

Indicators for Problematic Hydric Soils:[4]

- ☐ 1 cm Muck (A9) (**LRR C**)
- ☐ 2 cm Muck (A10) (**LRR B**)
- ☐ Reduced Vertic (F18)
- ☐ Red Parent Material (TF2)
- ☐ Other (Explain in Remarks)

[4]Indicators of hydrophytic vegetation and wetland hydrology must be present.

Restrictive Layer (if present):

Type: Gravel

Depth (inches):

Hydric Soil Present? Yes ○ No ◉

Remarks:

Too gravelly to dig more than 12".

HYDROLOGY

Wetland Hydrology Indicators:

Primary Indicators (any one indicator is sufficient)

- ☐ Surface Water (A1)
- ☐ High Water Table (A2)
- ☐ Saturation (A3)
- ☐ Water Marks (B1) (**Nonriverine**)
- ☐ Sediment Deposits (B2) (**Nonriverine**)
- ☐ Drift Deposits (B3) (**Nonriverine**)
- ☐ Surface Soil Cracks (B6)
- ☐ Inundation Visible on Aerial Imagery (B7)
- ☐ Water-Stained Leaves (B9)
- ☐ Salt Crust (B11)
- ☐ Biotic Crust (B12)
- ☐ Aquatic Invertebrates (B13)
- ☐ Hydrogen Sulfide Odor (C1)
- ☐ Oxidized Rhizospheres along Living Roots (C3)
- ☐ Presence of Reduced Iron (C4)
- ☐ Recent Iron Reduction in Tilled Soils (C6)
- ☐ Thin Muck Surface (C7)
- ☐ Other (Explain in Remarks)

Secondary Indicators (2 or more required)

- ☐ Water Marks (B1) (**Riverine**)
- ☐ Sediment Deposits (B2) (**Riverine**)
- ☐ Drift Deposits (B3) (**Riverine**)
- ☐ Drainage Patterns (B10)
- ☐ Dry-Season Water Table (C2)
- ☐ Crayfish Burrows (C8)
- ☐ Saturation Visible on Aerial Imagery (C9)
- ☐ Shallow Aquitard (D3)
- ☐ FAC-Neutral Test (D5)

Field Observations:

Surface Water Present? Yes ○ No ◉ Depth (inches):

Water Table Present? Yes ○ No ◉ Depth (inches):

Saturation Present? (includes capillary fringe) Yes ○ No ◉ Depth (inches):

Wetland Hydrology Present? Yes ○ No ◉

Describe Recorded Data (stream gauge, monitoring well, aerial photos, previous inspections), if available:

Remarks: No indicators of wetland hydrology.

WETLAND DETERMINATION DATA FORM - Arid West Region

Project/Site: Fingerman Property | City/County: Calistoga, Napa County | Sampling Date: 09/22/2016

Applicant/Owner: Mr. Fingerman | State: CA | Sampling Point: 07

Investigator(s): Jake Schweitzer, VNLC | Section, Township, Range: Section 7, Township 08N, Range 06W

Landform (hillslope, terrace, etc.): Hillslope | Local relief (concave, convex, none): Concave | Slope (%): 10-20

Subregion (LRR): C - Mediterranean California | Lat: UTM 4267390 | Long: UTM 537510 | Datum: NAD83

Soil Map Unit Name: Forward-Kidd complex (gravelly loam) | NWI classification: N/A

Are climatic / hydrologic conditions on the site typical for this time of year? Yes (●) No ( ) (If no, explain in Remarks.)

Are Vegetation [ ] Soil [ ] or Hydrology [ ] significantly disturbed? Are "Normal Circumstances" present? Yes (●) No ( )

Are Vegetation [ ] Soil [ ] or Hydrology [ ] naturally problematic? (If needed, explain any answers in Remarks.)

SUMMARY OF FINDINGS - Attach site map showing sampling point locations, transects, important features, etc.

Hydrophytic Vegetation Present?	Yes (●)	No ( )	
Hydric Soil Present?	Yes (●)	No ( )	**Is the Sampled Area within a Wetland?** Yes (●) No ( )
Wetland Hydrology Present?	Yes (●)	No ( )	

Remarks:

Seasonal wetland at upper edge of perennial pond, along hillslope.

VEGETATION - Use scientific names of plants.

	Absolute % Cover	Dominant Species?	Indicator Status
Tree Stratum Plot size: 25 feet			
1.			
2.			
3.			
4.			
	%		
Sapling/Shrub Stratum Plot size: 15 feet			
1.			
2.			
3.			
4.			
5.			
Total Cover:	%		
Herb Stratum Plot size: 5 feet			
1. *Polypogon maritimus*	10	Yes	OBL
2. *Eleocharis macrostachya*	10	Yes	OBL
3. *Leontodon saxatilis*	2	No	FACU
4. *Croton setigerus*	2	No	UPL
5. *Juncus bufonius*	1	No	FACW
6. *Alisma triviale*	<1	No	OBL
7. *Veronica sp.*	<1	No	UPL
8. *Lythrum hyssopifolium*	<1	No	OBL
Total Cover:	25 %		
Woody Vine Stratum Plot size: 15 feet			
1.			
2.			
Total Cover:	%		

% Bare Ground in Herb Stratum 75 % | % Cover of Biotic Crust %

Dominance Test worksheet:

Number of Dominant Species That Are OBL, FACW, or FAC: 2 (A)

Total Number of Dominant Species Across All Strata: 2 (B)

Percent of Dominant Species That Are OBL, FACW, or FAC: 100.0 % (A/B)

Prevalence Index worksheet:

Total % Cover of:		Multiply by:	
OBL species	20	x 1 =	20
FACW species	1	x 2 =	2
FAC species		x 3 =	0
FACU species	2	x 4 =	8
UPL species	2	x 5 =	10
Column Totals:	25 (A)		40 (B)

Prevalence Index = B/A = 1.60

Hydrophytic Vegetation Indicators:

- [X] Dominance Test is >50%
- [X] Prevalence Index is ≤3.0[1]
- [ ] Morphological Adaptations[1] (Provide supporting data in Remarks or on a separate sheet)
- [ ] Problematic Hydrophytic Vegetation[1] (Explain)

[1]Indicators of hydric soil and wetland hydrology must be present.

Hydrophytic Vegetation Present? Yes (●) No ( )

Remarks: Dominated by wetland species.

SOIL

Sampling Point: 07

Profile Description: (Describe to the depth needed to document the indicator or confirm the absence of indicators.)

Depth (inches)	Matrix Color (moist)	%	Redox Features Color (moist)	%	Type[1]	Loc[2]	Texture[3]	Remarks
0-12	10YR 5/2	90	7.5YR 6/8	10	C	M	Loam	Gravelly

[1]Type: C=Concentration, D=Depletion, RM=Reduced Matrix. [2] CS=Covered or Coated Sand Grains. Location: PL=Pore Lining, M=Matrix.
[3]Soil Textures: Clay, Silty Clay, Sandy Clay, Loam, Sandy Clay Loam, Sandy Loam, Clay Loam, Silty Clay Loam, Silt Loam, Silt, Loamy Sand, Sand.

Hydric Soil Indicators: (Applicable to all LRRs, unless otherwise noted.)

- ☐ Histosol (A1)
- ☐ Histic Epipedon (A2)
- ☐ Black Histic (A3)
- ☐ Hydrogen Sulfide (A4)
- ☐ Stratified Layers (A5) (**LRR C**)
- ☐ 1 cm Muck (A9) (**LRR D**)
- ☐ Depleted Below Dark Surface (A11)
- ☐ Thick Dark Surface (A12)
- ☐ Sandy Mucky Mineral (S1)
- ☐ Sandy Gleyed Matrix (S4)
- ☐ Sandy Redox (S5)
- ☐ Stripped Matrix (S6)
- ☐ Loamy Mucky Mineral (F1)
- ☐ Loamy Gleyed Matrix (F2)
- ☒ Depleted Matrix (F3)
- ☐ Redox Dark Surface (F6)
- ☐ Depleted Dark Surface (F7)
- ☐ Redox Depressions (F8)
- ☐ Vernal Pools (F9)

Indicators for Problematic Hydric Soils:[4]

- ☐ 1 cm Muck (A9) (**LRR C**)
- ☐ 2 cm Muck (A10) (**LRR B**)
- ☐ Reduced Vertic (F18)
- ☐ Red Parent Material (TF2)
- ☐ Other (Explain in Remarks)

[4]Indicators of hydrophytic vegetation and wetland hydrology must be present.

Restrictive Layer (if present):

Type: N/A

Depth (inches):

Hydric Soil Present? Yes ◉ No ○

Remarks:

Hydric soils

HYDROLOGY

Wetland Hydrology Indicators:

Primary Indicators (any one indicator is sufficient)

- ☐ Surface Water (A1)
- ☐ High Water Table (A2)
- ☐ Saturation (A3)
- ☒ Water Marks (B1) (**Nonriverine**)
- ☐ Sediment Deposits (B2) (**Nonriverine**)
- ☐ Drift Deposits (B3) (**Nonriverine**)
- ☒ Surface Soil Cracks (B6)
- ☐ Inundation Visible on Aerial Imagery (B7)
- ☐ Water-Stained Leaves (B9)
- ☐ Salt Crust (B11)
- ☐ Biotic Crust (B12)
- ☐ Aquatic Invertebrates (B13)
- ☐ Hydrogen Sulfide Odor (C1)
- ☐ Oxidized Rhizospheres along Living Roots (C3)
- ☐ Presence of Reduced Iron (C4)
- ☐ Recent Iron Reduction in Tilled Soils (C6)
- ☐ Thin Muck Surface (C7)
- ☐ Other (Explain in Remarks)

Secondary Indicators (2 or more required)

- ☐ Water Marks (B1) (**Riverine**)
- ☐ Sediment Deposits (B2) (**Riverine**)
- ☐ Drift Deposits (B3) (**Riverine**)
- ☐ Drainage Patterns (B10)
- ☐ Dry-Season Water Table (C2)
- ☐ Crayfish Burrows (C8)
- ☐ Saturation Visible on Aerial Imagery (C9)
- ☐ Shallow Aquitard (D3)
- ☐ FAC-Neutral Test (D5)

Field Observations:

Surface Water Present? Yes ○ No ◉ Depth (inches):

Water Table Present? Yes ○ No ◉ Depth (inches):

Saturation Present? (includes capillary fringe) Yes ○ No ◉ Depth (inches):

Wetland Hydrology Present? Yes ◉ No ○

Describe Recorded Data (stream gauge, monitoring well, aerial photos, previous inspections), if available:

Remarks: Animal tracks/hoof prints also present as indicators.

WETLAND DETERMINATION DATA FORM - Arid West Region

Project/Site: Fingerman Property | City/County: Calistoga, Napa County | Sampling Date: 09/22/2016

Applicant/Owner: Mr. Fingerman | State: CA | Sampling Point: 08

Investigator(s): Jake Schweitzer, VNLC | Section, Township, Range: Section 7, Township 08N, Range 06W

Landform (hillslope, terrace, etc.): Berm Slope | Local relief (concave, convex, none): Convex | Slope (%): 10-20

Subregion (LRR): C - Mediterranean California | Lat: UTM 4267446 | Long: UTM 537566 | Datum: NAD83

Soil Map Unit Name: Forward-Kidd complex (gravelly loam) | NWI classification: N/A

Are climatic / hydrologic conditions on the site typical for this time of year? Yes (●) No ( ) (If no, explain in Remarks.)

Are Vegetation [ ] Soil [ ] or Hydrology [ ] significantly disturbed? Are "Normal Circumstances" present? Yes (●) No ( )

Are Vegetation [ ] Soil [ ] or Hydrology [ ] naturally problematic? (If needed, explain any answers in Remarks.)

SUMMARY OF FINDINGS - Attach site map showing sampling point locations, transects, important features, etc.

Hydrophytic Vegetation Present?	Yes ( )	No (●)	
Hydric Soil Present?	Yes ( )	No (●)	**Is the Sampled Area within a Wetland?** Yes ( ) No (●)
Wetland Hydrology Present?	Yes ( )	No (●)	

Remarks:
Upland hillslope above point 07.

VEGETATION - Use scientific names of plants.

Tree Stratum Plot size: 25 feet	Absolute % Cover	Dominant Species?	Indicator Status
1.			
2.			
3.			
4.			
	%		
Sapling/Shrub Stratum Plot size: 15 feet			
1. *Quercus wislizeni*	2	No	Not Listed
2.			
3.			
4.			
5.			
Total Cover:	2 %		
Herb Stratum Plot size: 5 feet			
1. *Gastridium phleoides*	15	Yes	FACU
2. *Leontodon saxatilis*	12	Yes	FACU
3. *Briza minor*	8	Yes	FAC
4. *Navarretia squarrosa*	1	No	FACU
5. *Bromus hordeaceus*	1	No	FACU
6. *Croton setigerus*	1	No	Not Listed
7. *Veronica sp.*	<1	No	Not Listed
8. *Lythrum hyssopifolium*	<1	No	OBL
Total Cover:	38 %		
Woody Vine Stratum Plot size: 15 feet			
1.			
2.			
Total Cover:	%		

% Bare Ground in Herb Stratum 62 % | % Cover of Biotic Crust %

Dominance Test worksheet:

Number of Dominant Species That Are OBL, FACW, or FAC: 1 (A)

Total Number of Dominant Species Across All Strata: 3 (B)

Percent of Dominant Species That Are OBL, FACW, or FAC: 33.3 % (A/B)

Prevalence Index worksheet:

Total % Cover of:		Multiply by:	
OBL species	0	x 1 =	0
FACW species		x 2 =	0
FAC species	8	x 3 =	24
FACU species	29	x 4 =	116
UPL species	3	x 5 =	15
Column Totals:	40 (A)		155 (B)

Prevalence Index = B/A = 3.88

Hydrophytic Vegetation Indicators:

- [ ] Dominance Test is >50%
- [ ] Prevalence Index is ≤3.0[1]
- [ ] Morphological Adaptations[1] (Provide supporting data in Remarks or on a separate sheet)
- [ ] Problematic Hydrophytic Vegetation[1] (Explain)

[1]Indicators of hydric soil and wetland hydrology must be present.

Hydrophytic Vegetation Present? Yes ( ) No (●)

Remarks: Upland habitat at upper edge of pond slope.

SOIL

Sampling Point: 08

Profile Description: (Describe to the depth needed to document the indicator or confirm the absence of indicators.)

Depth (inches)	Matrix Color (moist)	Matrix %	Redox Features Color (moist)	Redox Features %	Type[1]	Loc[2]	Texture[3]	Remarks
0-18	10YR 5/2	100					Sandy Loam	Gravelly

[1]Type: C=Concentration, D=Depletion, RM=Reduced Matrix. [2] CS=Covered or Coated Sand Grains. Location: PL=Pore Lining, M=Matrix.
[3]Soil Textures: Clay, Silty Clay, Sandy Clay, Loam, Sandy Clay Loam, Sandy Loam, Clay Loam, Silty Clay Loam, Silt Loam, Silt, Loamy Sand, Sand.

Hydric Soil Indicators: (Applicable to all LRRs, unless otherwise noted.)

- ☐ Histosol (A1)
- ☐ Histic Epipedon (A2)
- ☐ Black Histic (A3)
- ☐ Hydrogen Sulfide (A4)
- ☐ Stratified Layers (A5) (**LRR C**)
- ☐ 1 cm Muck (A9) (**LRR D**)
- ☐ Depleted Below Dark Surface (A11)
- ☐ Thick Dark Surface (A12)
- ☐ Sandy Mucky Mineral (S1)
- ☐ Sandy Gleyed Matrix (S4)
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Indicators for Problematic Hydric Soils:[4]

- ☐ 1 cm Muck (A9) (**LRR C**)
- ☐ 2 cm Muck (A10) (**LRR B**)
- ☐ Reduced Vertic (F18)
- ☐ Red Parent Material (TF2)
- ☐ Other (Explain in Remarks)

[4]Indicators of hydrophytic vegetation and wetland hydrology must be present.

Restrictive Layer (if present):

Type: N/A

Depth (inches):

Hydric Soil Present? Yes ○ No ◉

Remarks:

Not hydric soils

HYDROLOGY

Wetland Hydrology Indicators:

Primary Indicators (any one indicator is sufficient)

- ☐ Surface Water (A1)
- ☐ High Water Table (A2)
- ☐ Saturation (A3)
- ☐ Water Marks (B1) (**Nonriverine**)
- ☐ Sediment Deposits (B2) (**Nonriverine**)
- ☐ Drift Deposits (B3) (**Nonriverine**)
- ☐ Surface Soil Cracks (B6)
- ☐ Inundation Visible on Aerial Imagery (B7)
- ☐ Water-Stained Leaves (B9)
- ☐ Salt Crust (B11)
- ☐ Biotic Crust (B12)
- ☐ Aquatic Invertebrates (B13)
- ☐ Hydrogen Sulfide Odor (C1)
- ☐ Oxidized Rhizospheres along Living Roots (C3)
- ☐ Presence of Reduced Iron (C4)
- ☐ Recent Iron Reduction in Tilled Soils (C6)
- ☐ Thin Muck Surface (C7)
- ☐ Other (Explain in Remarks)

Secondary Indicators (2 or more required)

- ☐ Water Marks (B1) (**Riverine**)
- ☐ Sediment Deposits (B2) (**Riverine**)
- ☐ Drift Deposits (B3) (**Riverine**)
- ☐ Drainage Patterns (B10)
- ☐ Dry-Season Water Table (C2)
- ☐ Crayfish Burrows (C8)
- ☐ Saturation Visible on Aerial Imagery (C9)
- ☐ Shallow Aquitard (D3)
- ☐ FAC-Neutral Test (D5)

Field Observations:

Surface Water Present? Yes ○ No ◉ Depth (inches):

Water Table Present? Yes ○ No ◉ Depth (inches):

Saturation Present? (includes capillary fringe) Yes ○ No ◉ Depth (inches):

Wetland Hydrology Present? Yes ○ No ◉

Describe Recorded Data (stream gauge, monitoring well, aerial photos, previous inspections), if available:

Remarks: No indicators of wetland hydrology.

DRAFT

SPECIAL-STATUS PLANT SURVEY

Hard Six Cellars
1755 S. Fork Diamond Mountain Road
Calistoga, CA 94516

Prepared

For

Hard Six Cellars

By

Kjeldsen Biological Consulting

June 2018

DRAFT

SPECIAL-STATUS PLANT SURVEY
Hard Six Cellars
1755 S. Fork Diamond Mountain Road
Calistoga, CA 94516

TABLE OF CONTENTS

DRAFT

SPECIAL-STATUS PLANT SURVEY
Hard Six Cellars
1755 S. Fork Diamond Mountain Road
Calistoga, CA 94516

EXECUTIVE SUMMARY

This study was conducted at the request of Donna Oldford on behalf of the property owner as botanical background studies for project permits from the Napa County Planning, Building and Environmental Services Department.

The project proposes widening of the access road, winery, wine caves, and disposal of wine cave spoils.

The property is within the hills on the east side of the Napa Valley approximately two miles south of Calistoga. Access is via St Helena Highway, thence Diamond Mountain Road. The property is within the USGS 7.5-minute Calistoga Quadrangle.

The following summarizes the results of our 2018 seasonally appropriate floristic fieldwork and analysis of the botanical resources present within and around the footprint of the proposed project:

- The special-status species which were the focus of the study are those listed by the State or Federal Government as Rare, Threatened or Endangered, Federal candidates for listing, proposed for State or Federal Listing or included in the CNPS inventory of Rare and Endangered Plants of California;

- The literature indicates that there are no records of occurrence of target special-status for the project site. The nearest records are for: Calistoga Ceanothus, Cobb Mountain Lupine, Napa False Indigo, Loch Lomond Button Celery and Calistoga Popcorn Flower:

- Two special-status plants were present within the study area that are listed by the California Native Plant Society (CNPS): Calistoga Ceanothus (*Ceanothus divergens* CNPS List 1.B.2) and Napa False Indigo (*Amorpha californica* var. *napensis* CNPS List 1.B.2). These plants do not have State or Federal Listing but are listed by the California Native Plant Society. These plants have been flagged in the field and the population boundaries defined;

- Vegetation within the proposed project footprint, classified using the criteria of Sawyer 2009 consists of Shrub/Chaparral, developed landscape (ruderal vegetation-annual grassland), freshwater marsh, and Forest Woodland;

- The Napa County Baseline Data Report (NCBDR), as well as the California Department of Fish and Wildlife Natural Diversity Data Base (CDFW CNDDB), lists recognized

Sensitive Biotic Communities. The Napa County Baseline Data Report (NCBDR) lists twenty-three communities that are considered sensitive due to their rarity, high biological diversity, and/or susceptibility to disturbance or destruction. The NCBDR Sensitive Biotic Communities on the project site are: Redwood Forest and Tanbark Oak Alliances along the road alignment and Coastal and Valley Freshwater Marsh associated with the pond. The CDFW Sensitive Biotic Community on the project site is Coastal and Valley Freshwater Marsh associated with the pond;

- A complete list of all plants encountered on or near the proposed project is included as an attachment Appendix A.

Assessment of Impacts

The proposed project will potentially result in impact to two CNPS listed plants Calistoga Ceanothus (*Ceanothus divergens)* and Napa False Indigo (*Amorpha californica* var. *napensis).*

The impacts to the Sensitive Habitat listed in the Napa County Baseline Report to Redwood Forest and Tan Oak Woodland Alliance are less than significant and will not be impacted by the proposed project, and mitigation is not recommended.

The project proposes filling of a portion of the pond. This area supports a Fresh Water Marsh that is listed as sensitive by CDFW and the NCBDR. The project will impact Fresh Water Marsh habitat.

Mitigation Considerations and Recommendations

It is recommended that the project road alignment be adjusted to eliminate impact to the single Calistoga Ceanothus (*Ceanothus divergens)* plant on the north edge of the road. We also recommend avoiding populations of Calistoga Ceanothus and Napa False Indigo on the project site.

A no disturbance buffer should be placed around individual plant(s) or population(s) during activities that could result in disturbance. A greater no disturbance buffer may be warranted to ensure the hydrology of the site is not disrupted and the plants and seed bank will not be impacted. The no disturbance buffer will be clearly identified in the field by staking, flagging, or fencing around depressions, swales, or other features containing Calistoga Ceanothus and Napa False Indigo plants. Project activity will avoid buffer areas to ensure that the buffer area is not being encroached upon and that effects are being avoided.

The placement of wine cave spoils in the area of the Fresh Water Marsh of the Pond will require agency consultation and potentially permits. If agency consultation determines that this area is jurisdictional permits will have to be secured from the California Department of Fish and Wildlife, U.S. Army Corps of Engineers, and Regional Water Quality Control Board for impacts to “Waters of the State”.

If special-status plant species found cannot be avoided, then a Mitigation Plan will have to be prepared and approved by California Department of Fish and Game. We recommend

consultation with agencies prior to development of the Mitibation Plan. The plan would specify, at a minimum, the following: (1) the location of the mitigation site(s); (2) procedures for procuring plants, such as transplanting or collecting seed from plants to be impacted; (3) procedures for propagating collected seed; (4) the quantity and species of plants to be planted or transplanted; (4) planting procedures, including the use of soil preparation and irrigation; (5) a schedule and action plan to maintain and monitor the mitigation site for a minimum 5 year period; (6) reporting procedures, including the contents of annual progress reports; (7) a list of criteria (e.g., growth, plant cover, survivorship) by which to measure success of the plantings; and (8) contingency measures to implement if the plantings are not successful.

SPECIAL-STATUS PLANT SURVEY
Hard Six Cellars
1755 S. Fork Diamond Mountain Road
Calistoga, CA 94516

A. PROJECT DESCRIPTION

This study was conducted at the request of Donna Oldford on behalf on behalf of the property owner as botanical background studies for permits from the Napa County Planning, Building and Environmental Services Department.

The project proposes the construction of 7,135 sq. ft. wine cave (Class III), construction of 3,539 sq. ft. of winery structures, construction of 6,671 sq. ft. outdoor uncovered work area (not a crush pad) and a 1,144-sq. ft. outdoor hospitality patio, installation of winery process and sanitary wastewater system, installation of 55,000 gallon water storage tanks, construction of 168-sq. ft. pump house, construction of winery access road (with road exception request) and a total of four (4) parking spaces, three (3) standard + one (1) ADA, and restoration of an existing pond/reservoir.

A.1 Location

The property is within the hills on the east side of the Napa Valley approximately two miles south of Calistoga. Access is via St Helena Highway thence Diamond Mountain Road. The property is within the USGS 7.5-minute Calistoga Quadrangle. Plate I provides a site and location map of the proposed project.

A.2 Purpose

The purpose of this study and report is to present the results of a floristic survey, to characterize the plant associations present and to determine the presence or absence of special-status plant species that may be impacted by the proposed project. The potential listed special-status plants (target plant species) for the Quadrangle, the surrounding Quadrangles or for Napa County and or the region were focus of this study. Surveys were conducted following Napa County Guidelines for Preparing Special-status Plant Studies Attachment C, and follows the California Department of Fish and Wildlife Guidelines and the California Native Plant Society Guidelines.

B. SURVEY METHODOLOGY

The background for our work includes a site introduction by Mr. and Mrs. Fingerman and site plans provided by the project civil engineer Andy Simpson.

B.1 Project Scoping

Our scoping included identification and location of habitat and or vegetation types present on the project site, and their potential to support special-status plant species known for the Quadrangle, surrounding Quadrangles the County or the region.

Special-status plant species were considered from the most recent records in the California Department of Fish and Wildlife California Natural Diversify Data Base (DFW CNDDB Rare Find-3) and the most recent update of California Native Plant Society (CNPS) Electronic Inventory of Rare or Endangered Plants. Our scoping is also a function of our familiarity with the local flora and previous projects in the area.

“Target” special-status plant species are those plants listed by the State, the Federal Government or the California Native Plant Society or considered threatened in the region.

A species, subspecies, or variety of plant is "endangered" when the prospects of its survival and reproduction are compromised by exploitation, predation, competition, or disease. A plant is "threatened" when it is likely to become endangered in the foreseeable future in the absence of protection measures. A plant is "rare" when, although not presently threatened with extinction, the species, subspecies, or variety is found in such small numbers throughout its range that it may be endangered if its environment worsens.
Included are California Native Plant Society List 1B, 2, and 3 plants as well as plants that are rare or identified as sensitive biotic communities in the Napa County Baseline Data Report, 2005.
Rare natural communities are those communities that are of highly limited distribution in the State, the County or the local area. These communities may or may not contain rare, threatened, or endangered species. The most current version of the California Natural Diversity Database's List of California Terrestrial Natural Communities may be used as a guide to the names and status of communities.

Sensitive Communities CDFW CNDDB identifies environmentally sensitive plant communities that are rare or threatened in nature. Sensitive habitat is defined as any area that meets one of the following criteria: (1) habitats containing or supporting "rare and endangered" species as defined by the State Fish and Wildlife Commission, (2) all perennial and intermittent streams and their tributaries, (3) coastal tide lands and marshes, (4) coastal and offshore areas containing breeding or nesting sites and coastal areas used by migratory and resident water-associated birds for resting areas and feeding, (5) areas used for scientific study and research concerning fish and wildlife, (6) lakes and ponds and adjacent shore habitat, (7) existing game and wildlife refuges and reserves, and (8) sand dunes.

B.2 Field Survey Methodology

FIELD SURVEY PROTOCOL as per County Requirements: Field surveys were conducted in a manner to locate any special-status plants that may be present. Specifically, special-status plant surveys shall be

a. ***Conducted in the field at the proper time of year when special-status species are both evident and identifiable***. Usually, this is when the plants are flowering. When special-status plants are known to occur in the type(s) of habitat present in the project area, nearby accessible occurrences of the plants (reference sites) should be observed to determine that the species are identifiable at the time of the survey.

b. ***Floristic in nature.*** A floristic survey requires that every plant observed be identified to the extent necessary to determine its rarity and listing status. In addition, a sufficient number of visits spaced throughout the growing season are necessary to accurately determine what plants exist on the site. In order to properly characterize the site and document the completeness of the survey, a complete list of plants observed on the site should be included in every botanical survey report.

c. ***Conducted in a manner that is consistent with conservation ethics.*** Collections (voucher specimens) of rare, threatened, or endangered species, or suspected rare, threatened, or endangered species should be made only when such actions would not jeopardize the continued existence of the population and in accordance with applicable state and federal permit requirements. A collecting permit from the Habitat Conservation Planning Branch of DFG is required for collection of state-listed plant species. Voucher specimens should be deposited at recognized public herbaria for future reference. Photography should be used to document plant identification and habitat whenever possible, but especially when the population cannot withstand collection of voucher specimens.

d. ***Conducted using systematic field techniques in all habitats of the site*** to ensure a thorough coverage of potential impact areas.

e. ***Well documented.*** When a rare, threatened, or endangered plant (or rare plant community) is located, a California Native Species (or Community) Field Survey Form or equivalent written form, accompanied by a copy of the appropriate portion of a 7.5 minute topographic map with the occurrence mapped, shall be completed and submitted to the Natural Diversity Database. Locations may be best documented using global positioning systems (GPS) and presented in map and digital forms as these tools become more accessible.

Our study was made by walking transects through and around the project sites. In addition the surrounding environment was reviewed for evidence of special-status plant species. Our fieldwork focused on locating target organisms or suitable habitat for target organisms or indications that such habitat exists on the sites.

Plants were identified in the field or specimens were collected, when necessary, for laboratory examination with a binocular microscope and appropriate literature references. Voucher material

was collected in field packets for later identification for those species with features that require microscopic identification. A Wild dissecting microscope and a Leitz compound microscope were used for identification with appropriate literature. Typically blooming examples are required for identification, however, it is not the only method for identifying the presence of, or excluding the possibility of rare plants. Vegetative morphology and dried flower or fruit morphology which may persist long after the blooming period may also be used. Skeletal remains from previous season's growth can also be used for identification. Some species do not flower each year or only flower at maturity and therefore must be identified from vegetative characteristics. Algae, fungi, mosses, lichens, ferns, Lycophyta and Sphenophyta have no flowers and there are representatives from these groups that are now considered to be special-status species that require non-blooming identification. For some plants unique features such as the aromatic oils present are key indicator. For some trees and shrubs with unique vegetative characteristics flowering is not needed for proper identification. The vegetative evaluation as a function of field experience can be used to identify species outside of the blooming period to verify or exclude the possibility of special-status plants in a study area.

Habitat is also a key characteristic for consideration of special-status species in a study area. Many special-status species are rare in nature because of their specific often very narrow habitat or environmental requirements. Their presence is limited by very specific environmental conditions such as: hydrology, microclimate, soils, nutrients, interspecific, and intraspecific competition, and aspect or exposure. In some situations special-status species particularly annuals may not be present each year and in this case one has to rely on skeletal material from previous years. A site evaluation based on habitat or environmental conditions is, therefore, a reliable method for including or excluding the possibility of special-status species in an area.

All plants observed (living and or remains from last season's growth) were recorded in field notes and the results are presented in Appendix A. Our survey was a seasonal floristic survey covering the blooming season of potential target plant species.

B.3 Reference Sites or Herbaria Visited

Populations of Stanford's Manzanita (*Arctostaphylos manzanita x A. stanfordiana),* Napa False Indigo (*Amorpha californica* var. *napensis*), Calistoga Ceanothus (*Ceanothus divergens*, Cobb Mountain Lupine (*Lupinus sericatus*), and Clara Hunt's Milk-vetch (*Astragalus clarianus*) Swamp Harebell (*Campanula californica),* Maple Leaf Checkerbloom (*Sidalcea malachroides),* Crystal Springs Lessingia (*Lessingia arachoniodea),* Harlequin Lotus (*Lotus formosissimus),* Pennell's Birds Beak (*Cordylanthus tenuis* ssp. *capillaries),* Tufted Hairgrass (*Deschampsia cespitosa),* Baker's Manzanita (*Arctostaphylos bakeri*), and the Thin-lobed Horkelia (*Horkelia tenuiloba)* were reviewed during and prior to the fieldwork.

B.4 Dates and Person-hours

Table I Date and times of field studies.

Date	Personnel	Person-hr.	Time	Conditions
March 2 2018	Chris K. and Daniel T. Kjeldsen	3.0 perso hours	09:00 to 12:00	High Clouds, mi temperatures, light wind.
April 1 2018	Chris K. and Daniel T. Kjeldsen	4.0 perso hours	09:00 to 11:00	High clouds cool temperatur light breezes.
May 15, 201	Chris K. and Daniel T. Kjeldsen	4.0 perso hours	13:30 15:30	Clear, no wind, with mi temperatures.
June 5, 2018	Chris K. and Daniel T. Kjeldsen	4.0 perso hours	10:30 12:30	Mild temperatures Clear.

B.5 Names of and Qualifications of Field Investigators

Chris K. Kjeldsen, Ph.D., Botany, Oregon State University, Corvallis, Oregon. He has over forty years of professional experience in the study of California flora. He was a member of the Sonoma County Planning Commission and Board of Zoning (1972 to 1976). He has over thirty years of experience in managing and conducting environmental projects involving impact assessment and preparation of compliance documents, Biological Assessments, DFW Habitat Assessments, DFW Mitigation projects, ACOE Mitigation projects and State Parks and Recreation Biological Resource Studies. Experience includes conducting special-status species surveys, jurisdictional wetland delineations, general biological surveys, 404 and 1600 permitting, and consulting on various projects. He taught Plant Taxonomy at Oregon State University and numerous botanical science and aquatic botany courses at Sonoma State University (35-years) including sections on wetlands and wetland delineation techniques. He has supervised numerous graduate theses, NSF, DOE and local agency grants and served as a university administrator. He has a valid DFW collecting permit.

Daniel T. Kjeldsen, B. S., Natural Resource Management, California Polytechnic State University, San Luis Obispo, California. He spent l994 to l996 in the Peace Corps managing natural resources in Honduras, Central America. His work for the Peace Corps in Central America focused on watershed inventory, mapping and the development and implementation of a protection plan. He has over fifteen years of experience in conducting Biological Assessments, DFW Habitat Assessments, ACOE wetland delineations, wetland rehabilitation, and development of and implementation of mitigation projects and mitigation monitoring. He has received 3.2 continuing education units MCLE 27 hours in Determining Federal Wetlands Jurisdiction from the University of California Berkeley Extension. Attended Wildlife Society Workshop Falconiformes of Northern California Natural History and Management California Tiger Salamander 2003; Natural History and Management of Bats Symposium 2005: Western Pond Turtle Workshop 2007; Western Section Bat Workshop 2011, and Laguna Foundation & The Wildlife Project Rare Pond Species Survey Techniques 2009. A full resume is available upon request.

C. BIOLOGICAL SETTING

The property is within the inner North Coast Range Mountains, a geographic subdivision of the larger California Floristic Province that is strongly influenced by the Pacific Ocean. The region is in climate Zone 14 "Ocean influenced Northern and Central California" characterized as an inland area with ocean or cold air influence. The climate of the region is characterized by hot, dry summers and cool, wet winters, with precipitation that varies regionally from less than 30 to more than 60 inches per year. This climate regime is referred to as a "Mediterranean Climate." The average annual temperature ranges from 45 to 90 degrees Fahrenheit. The variations of abiotic conditions including geology results in a high level of biological diversity per unit area.

The vegetation of California has been considered to be a mosaic with major changes present from one area to another often with distinct vegetation changes within short distances. It is generally convenient to refer to the vegetation associates on a site as a plant community or alliance. Typically plant communities or vegetation alliances are identified or characterized by the dominant vegetation form or plant species present. There have been numerous community classification schemes proposed by different authors using different systems for the classification of vegetation. A basic premise for the designation of plant communities, associations or alliances is that in nature there are distinct plant populations occupying a site that are stable at any one time (climax community is a biotic association, that in the absence of disturbance maintains a stable assemblage over long periods of time).

C.1 Biological Resources Evaluation Area

The survey area is shown on Plate III. Our survey focused on the proposed winery site, caves and road alignment.

Vegetation within the proposed project footprint, classified using the criteria of Sawyer 2009), consists of developed landscape (ruderal vegetation-grassland) Chaparral (Mixed Chaparral), Forest Woodland Alliances and freshwater marsh.

The CNPS Inventory of Rare and Endangered Plants of California associates the rare and endangered species with "Habitat Types." The Habitat Type for the study area would be considered to be Chaparral, Valley and Foothill Grassland, Freshwater marsh, and Cismontane Woodland.

The dominant vegetation on the project site is specifically classified by A Manual of California Vegetation (Sawyer) 2009 as Forest or Woodland Alliances, Grassland Semi-natural Herbaceros Stands and Shrubland Chaparral Alliance. The pond on the project study area is a constructed feature of the landscape and the margin fluctuates seasonally. Portions consist of a willow shrub, tule and cattail fringe, smart weed herbaceous fringe and (*Eleocharis*, *Juncus* and *Cyperus*) herbaceous stands (these are for the most part temporal and a small part of the landscape if they were larger they could be classified as specific Alliances as per Sawyer, 2009). The Woodland, Chaparral and Ruderal Grassland Alliances on the project site are described below.

Grassland; Semi-natural Herbaceous Stands with Herbaceous Layer

Semi-Natural Herbaceous Grasslands are a result of decades of introduction of non-native grasses and herbs. Sawyer uses the term "Semi-natural Stands to refer to non-native introduced plants that have become established and coexist with native species. Semi-natural stands are those dominated by non-native species that have become naturalized primarily as a result of historic agricultural practices and fire suppression or management practices for weed abatement and fire suppression. This includes what can be termed weeds, aliens, exotics or invasive plants in agricultural and nonagricultural settings.
Experts conclude that native grasslands in California are among the most endangered ecosystem in the United States. This is due to historical land use, the introduction of naturalized non-native species of grasses and herbs and introduced disease. It is estimated that less than 1% of our state's original grasslands remain.

Non-Native Grassland

This community is typically found on fine-textured soils, which may range from moist, possibly even waterlogged during the rainy season, to very dry during the dry season. It is primarily composed of non-native annual grasses although native annual forbs ("wildflowers") may also be present during years of favorable precipitation. Non-native grassland communities are found in the valleys and foothills throughout much of California. Characteristic species include wild oats (*Avena* spp.), bromes (*Bromus* spp.), Ryegrass (*Festuca perennis*), California poppy (*Eschscholzia californica*), lupine (*Lupinus* spp.), and baby blue-eyes (*Nemophila menziesii*).

Ruderal Grassland

The ruderal grasslands have been termed California Annual Grassland Alliance. This extensive series is composed of many introduced non-native species with relict native annual species within the stands. The common taxa include non-native: wild oat (*Aven*a ssp.), ripgut brome (*Bromus didandrus*), soft chess (*Bromus hordordaceus*), wild barley (*Hordium murinum*), Mediterranean barley (*Hordium murinum* ssp. *gusoneanum*), rattlesnake grass (*Briza maxima*), little quaking grass (*Briza minor*), dogtail grass (*Cynosurus echinatus*), cultivated timothy (*Phleum pretense*), annual hairgrass (*Deschampsia danthoioides*), hood canarygrsss (*Phalaris paradoxa*), fescue (*Festuca arundinacea*), Medusa head-grass (*Elymus caput-medusae*) and rattail fescue (*Festuca myuros*). Often this alliance is invaded by star thistle (*Centaurea solstitialis*). Common forbs include filaree (*Erodium cicutarium*), smooth cat's ear (*Hypocheris glabra*), rough cat's ear (*Hypocheris radicata*), bur clover (*Medicago polymorpha*), California poppy (*Eschoscholzia californica*), clover (*Trifolium* ssp.), vetch (*Viccia* ssp.) and plantain (*Plantago lanceolata*).

Ruderal Annual Grassland is present along the edges of the project site and is a result of historic disturbance.

Shrubland / Chaparral Alliance

This vegetation type has been divided by numerous authors into Mixed Chaparral/Scrub, Serpentine Chaparral, and Chamise Chaparral. Chaparral plants are usually found in areas with Mediterranean climate that have shallow-rocky, low-nutrient soils, steep slopes, and a high degree of solar exposure. Chaparral communities are usually found on south facing slopes or

areas where water is not retained in the soil profile. This combination of physical factors results in xeric plants growing under stressed edaphic conditions. Chaparral is a vegetation type that is restricted to dry, exposed slopes and is typical for the ridges and slopes of the interior Coast Range Mountains of the County. Chaparral vegetation consists mainly of shrubs that are woody and with leaves adapted to xeric conditions (Holland and Kiel, l986) that are typically small-waxy leaves. Periodic fires are characteristic of this community. Chaparral plant communities are adapted to fire, with cycles as frequent as 10 to 40 years between fires. In fact, most species require fire for seed germination and stump sprouting. Chaparral as a seral stage is threatened by the absence of a normal fire regime.

The dominant plant species that define the chaparral habitat sub-type will be dependent on the soil substrate, such as serpentinite or volcanic geologic formations. Chaparral habitat types tend to be low in biotic diversity, as they do not provide rich habitat value. The principal shrub constituents of Chaparral/Scrub are; chemise (*Adenostoma fasciculatum),* manzanita *(Arctostaphylos* ssp.), sticky monkey flower *(Mimulus aurantiacus),* yerba-santa (*Eriodicyton californicum*), ceanothus *(Ceanothus* ssp.), scrub oak *(Quercus berberidifolia),* poison oak (*Toxicodendron diversilobum),* California broom or coyote brush (*Baccharis pilularis),* rabbit brush (*Chrysothamnus parryi* ssp. *latior),* manzanita (*Arctostaphylos glandulosa* ssp. *glandulosa),* chaparral pea (*Pickeringia montana),* California coffee berry (*Frangula californica* ssp. *californica),* toyon (*Heteromeles arbutifolia)* and pitcher sage *(Lepchinia calycina).*

Chaparral vegetation consists mainly of shrubs that are woody and with leaves adapted to xeric conditions (Holland and Kiel, l986). Periodic fires are characteristic of this community. Many of the species stump sprout after fires, which is characteristic of this habitat and this community as a seral stage, is threatened by the absence of a normal fire regime.

The Shrubland/Chaparral vegetation type is a structurally homogeneous brushland dominated by shrubs with thick, stiff, heavily cutinized evergreen leaves. Shrub height and crown cover vary considerably with age since last burn, precipitation regime aspect, and soil type. At maturity, the structure is typically a dense, nearly impenetrable thicket with greater than 80 percent absolute shrub cover. Canopy height ranges from 1 to 4 m, occasionally to 6 m. Considerable leaf litter and standing dead material may accumulate in stands that have not burned for several decades.

The Shrubland/Chaparral vegetation type is present on the hillside proposed for wine cave portals. It is obvious from the fieldwork that the site is in a seral stage as evidenced by the removal of conifers as evidenced by the downed timber, stumps and chips. The Chaparral community on the project site does not meet the criteria for the Mixed Serpentine Chaparral Biotic Community listed as a Sensitive Biotic Community in the Napa County Baseline Data Report. Sawyer lists 308 different types of Chaparral Alliances for California.

Mixed Chaparral

Structure-- Mixed Chaparral (MCH) is a structurally homogeneous brushland type dominated by shrubs with thick, stiff, heavily cutinized evergreen leaves. Shrub height and crown cover vary considerably with age since last burn, precipitation regime (cismontane vs. transmontane), aspect, and soil type (Hanes 1977). At maturity, cismontane Mixed Chaparral typically is a dense, nearly impenetrable thicket with greater than 80 percent absolute shrub

cover. Canopy height ranges from 1 to 4 m (3.3 to 13.1 fl), occasionally to 6 m (19.6 fl) (Horton 1960, Cheatham and Haller 1975, Hanes 1977). On poor sites, serpentine soils or transmontane slopes, shrub cover may be only 30 to 60 percent and shrubs may be shorter, 0.5 to 3.0 m (1.6 to 9.8 fl) (Cheatham and Haller 1975, Hanes 1976, 1977). Considerable leaf litter and standing dead material may accumulate in stands that have not burned for several decades.
Composition-- Mixed Chaparral is a floristically rich type that supports approximately 240 species of woody plants). Composition changes between northern and southern California and with precipitation regime, aspect, and soil type. Dominant species in cismontane Mixed Chaparral include scrub oak, chaparral oak, and several species of ceanothus and manzanita. Individual sites may support pure stands of these shrubs or diverse mixtures of several species. Commonly associated shrubs include chamise, birchleaf mountain mahogany, silk-tassel, toyon, yerba-santa, California buckeye, poison-oak, sumac, California buckthorn, hollyleaf cherry, Montana chaparral-pea, and California fremontia. Some of these species may be locally dominant. Leather oak and interior silktassel are widely distributed on cismontane serpentine soils, and chamise and toyon may be abundant on these soils. Shrubs such as coyote mint, dwarf soaproot, ceanothus and serpentine manzanita are local serpentine endemics (knobcone pine, and ghost pine frequently are found in Mixed Chaparral) It appears that these trees have been removed from the project site).

The special-status shrub *Ceanothus divergens* Calistoga Ceanothus is present within this vegetation type.

Forest or Woodland Alliances
Woodland Alliances are characterized by a dominant tree overstory and different degrees of understory development. Fire management, canopy age and degree of closure, windfalls, historic use, grazing, substrate base, aspect and rainfall are variables that control the degree of understory shrubs, herbs and tree recruitment. The Forest or Woodland Alliance present is along the proposed expansion of the access road.

***Notholithocarpus densiflorus* var. *densiflorus* = *(Lithocarpus densiflorus)* Forest Alliance**
Tanoak Forest: (membership rules *Notholithocarpus densiflorus* var. *densiflorus* >50% relative cover and >10% absolute cover in the tree layer; present in the regeneration layer). *Notholithocarpus densiflorus* var. *densiflorus* is dominant or co-dominant in the tree canopy with *Acer macrophyllum, Arbutus menziesii, Calocedrus decurrens, Chrysolepis chrysophylla, Pseudotsuga menziesii, Quercus agrifolia, Quercus chrysolepsis, Quercus kelloggii, Torreya californica, Tsuga heterophylla, Umbellularia californica* and *Sequoia sempervirens*. Trees < 45 m: canopy is continuous. The shrub layer is open and the herbaceous layer is sparse. *Notholithocarpus densiflorus* var. *densiflorus* is a slow growing shade-tolerant evergreen hardwood. Trees possess burls at the soil surface and extensive root system with deep taproots. *Notholithocarpus densiflorus* var. *densiflorus* sprouts following fire or cutting. Tan Oaks are vulnerable to and are being severly impacted by Sudden Oak Death Syndrome a recently introduced pathogen.

The special-status plant *Amorpha californica* var. *napensis* Napa False Indigo is present as an understory plant within this alliance on the property.

***Sequoia sempervirens* Forest Alliance Redwood Forest**; *Sequoia sempervirens* is dominant or co-dominant in the tree canopy with *Abies grandis*, *Acer macrophyllum*, *Alnus rubra*, *Arbutus menziesii*, *Chrysolepis chrysophylla*, *Notholithocarpus densiflorus* var. *densiflorus*, *Pseudotsuga menziesii*, *Tsuga heterophylla*, and *Umbellularia californica*. Trees <120m tall; canopy is intermittent or continuous; it may be two tiered. Shrubs are infrequent or common. Herbaceous layer is absent or abundant. Membership rules *Sequoia sempervirens* > 50% relative cover in the tree canopy, or > 30% relative cover with other conifers such as *Pseudotsuga menziesii* or with a lower tier of hardwood trees such as *Notholithocarpus densiflorus* var. *densiflorus*. *Sequoia sempervirens* occurs in moist coastal areas with heavy summer fog.

Figures 1 to 6 below illustrate project site.

Figure 1. Proposed winery site with wine cave portals proposed for the hillside in the background.

Figure 2 Area proposed for disposal of wine cave spoils.

Figure 3. Area proposed for cave portal. Calistoga Ceanothus is present within the chaparral on the hillside.

Figure 4. Area proposed for cave portal. Calistoga Ceanothus is present within the mixed chaparral on the hillside.

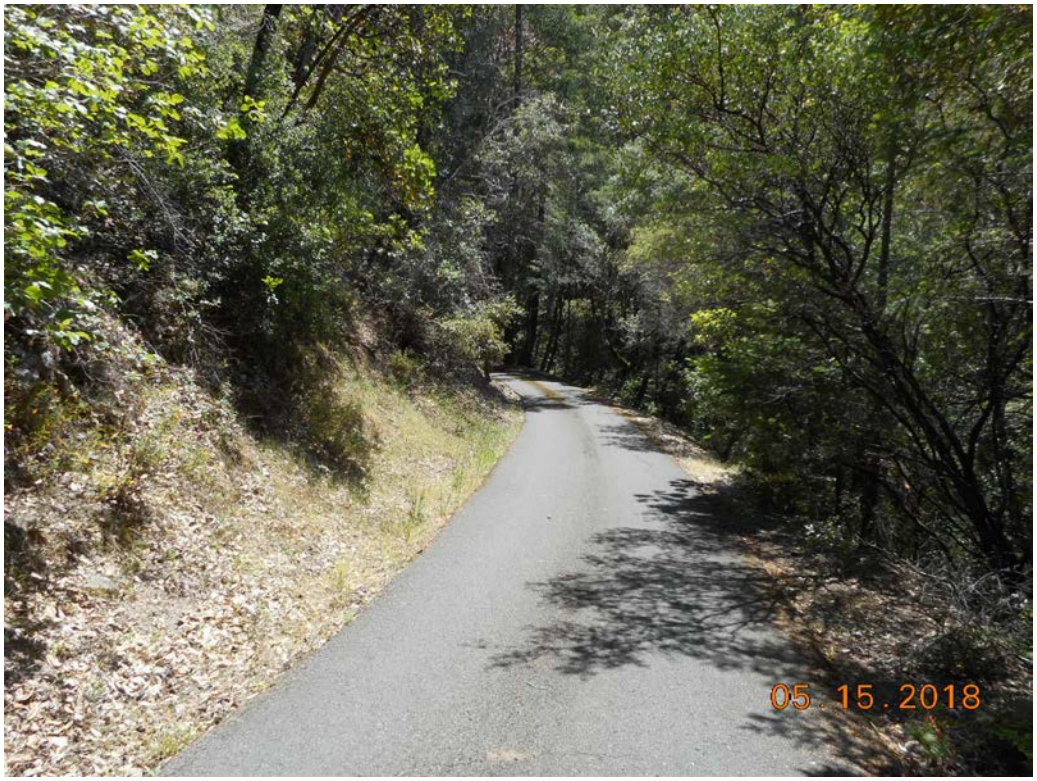

Figure 5. Access road proposed for widening. One Calistoga Ceanothus is present along the edge of this area.

Figure 6. Edge of access road with Napa False Indigo present as an understory.

C.2 Surrounding Biological Resources

The aerial photograph Plate III illustrates the site and the surrounding environment. The environmental setting of the proposed vineyard blocks consists of:

- North side of the project – Creek, Residence Chaparral, Oak woodlands;
- East side of the project – Vineyards, Oak Woodlands, Conifer Woodlands;
- South side of the project – Conifer, Oak Woodlands; and
- West side of the project –Vineyards, Conifer and Oak Woodlands.

A complete list of all plants encountered on the study area and immediate vicinity is included in Appendix A. Plate III illustrates the vegetation on the study area and surrounding environment.

The special-status plant species, which were the focus of the study, are shown in the table below. This table is based on the California Native Plant Society listed plants (Inventory of Rare and Endangered Plants) as shown in the attached Appendix B. The attached Appendix B shows the California Rare Plant Rank, State Rank and Global Rank.

D. RESULTS AND FINDINGS

D.1 Distribution of Special-status Plant species

A map from the DFW CNDDB illustrating records of special-status plant species in the proximity (five–mile radius) of the project is shown in Plate II (Note the Plate also shows known animal occurrences not covered by our survey). Table II provides information on the special-status plant species and a justification for concluding absence.

The grasslands are dominated by non-native annual grasses.

In the absence of salt marshes, vernal pools and serpentinite soils is reasonable to conclude that the historic use has over time eliminated the possibility for special-status plants on the project sites.

D.2 Discussion of Sensitive Habitat Types

The Napa County Baseline Data Report defines Biotic communities as the characteristic assemblages of plants and animals that are found in a given range of soil, climate, and topographic conditions across a region. Sensitive biotic communities in the County were identified using a two-step process for the Napa County Baseline Data Report.

The Napa County Baseline Data Report as well as the California Department of Fish and Wildlife Natural Diversity Data Base (CDFW CNDDB) lists recognized Sensitive Biotic Communities. The Napa County Baseline Data Report lists twenty-three communities that are considered sensitive by CDFW due to their rarity, high biological diversity, and/or susceptibility to disturbance or destruction.

Napa County biotic communities of limited distribution that are sensitive include: Native grassland; Tanbark oak alliance; Brewer willow alliance; Ponderosa pine alliance; Riverine, lacustrine, and tidal mudflats; and Wet meadow grasses super alliance. These biotic communities of limited distribution are not present on or near the project footprint except for the Tanbark Oak Alliance.

The California Department of Fish and Wildlife Natural Diversity lists: Northern Vernal Pool and Serpentine Bunchgrass, Valley Needlegrass Grassland and Wildflower Grassland. These sensitive habitat types are not present on or near the project footprint.

D.3 Table of Special-Status Plants for the Area

The Table below provides an analysis of our field results. Plant species listed in Appendix B that are associated with the waterways of San Francisco Bay are not considered as potential for the site and are therefore, not included in the table below.

Table II. Analysis of potential "target" special-status plant species. The taxa included in the table are selected based on the DFW CNDDB Rare Find 5 and records for recorded presence within 5 miles of the project sites (Plate II).

Scientific Name Common Name	**Species Habitat Association or Plant Community**	**Habitat present**	**Bloom Time**	**Obs. on or Near Site**	**Analysis of habitat on study area for presence or absence**
Allium peninsulare var. *franciscanum* Franciscan Onion	Cismontane woodland, Valley & Foothill Grassland/Clay often Serpentinite	No	May-June	No	Absence of requisite edaphic conditions.
Amorpha californica var. *napensis* Napa False Indigo	Cismontane Woodland	Yes	April-July	Yes	Present along road alignment.
Amsinkia lunularis Bent-flowered Fiddleneck	Cismontane Woodland, Valley & Foothill Grassland, 3 to 500 M	Yes	March-June	No	Lack of habitat. No indications for presence during our fieldwork.
Arctostaphylos manzanita ssp. *elegans* Konocti Manzanita	Dry slopes in Chaparral, Cismontane Woodland, Lower Montane Coniferous Forest	Yes	March-May	No	No evidence for presence.
Arctostaphylos stanfordiana ssp. *decumbans* Rincon Manzanita	Chaparral	No	Feb.-April	No	No evidence for presence.
Astragalus claranus Clara Hunt's Milk-vetch	Chaparral, Cismontane Woodland, Valley & Foothill Grassland	Yes	March-May	No	Absence of requisite micro-habitat and no evidence for presence.
Astragalus rattanii var. *jepsonianus* Jepson's Milk-vetch	Cismontane Woodland, Valley & Foothill Grassland	Yes	April-June	No	No evidence for presence.
Balsamorhiza macrolepis var. *macrolepis* Big-scale Balsamroot	Chaparral, Cismontane Woodland, Valley and Foothill Grassland	Yes	March-June	No	No evidence for presence.
Blennosperma bakeri Sonoma Sunshine	Valley and Foothill Grassland, Vernal Pools	No	March-May	No	Absence of requisite mesic habitat.

Brodiaea leptandra Narrow-anthered California Brodiaea	Cismontane Woodland	Yes	May-June	No	No evidence for presence.
Calystegia collina ssp. *oxyphylla* Mt. Saint Helena Morning-glory	Chaparral Serpentinite	No	April-June	No	Requisite habitat and edaphic conditions absent.
Ceanothus confusus Rincon Ridge Ceanothus	Closed Cone Conifer Forests, Chaparral, Montane Woodlands. Volcanic or serpentinite soils on dry shrubby slopes	Yes	Feb.-April	No	No evidence for presence.
Ceanothus divergens Calistoga Ceanothus	Chaparral, Serpentinite or Volcanic-Rocky	Yes	May-Sept.	Yes	Present on hillside proposed for wine caves.
Ceanothus purpureus Holly-leaved Ceanothus	Chaparral	Yes	March-May	No	No evidence for presence.
Ceanothus sonomensis Sonoma Ceanothus	Chaparral, Serpentinite or Rocky Volcanic.	Yes	Feb.-March	No	No evidence for presence.
Centromadia parryi ssp. *parryi* Pappose Tarplant	Grassland salt or alkaline Marshes	No	March-June	No	Requisite mesic conditions absent.
Cryptantha dissita Serpentine Cryptantha	Chaparral serpentinite	No	April-June	No	Requisite edaphic habitat absent on the site or in the immediate vicinity
Downingia pusilla Dwarf Downingia	Wetlands	No	March-May	No	Requisite aquatic habitat absent on the site or in the immediate vicinity.
Erigeron greenei Green's Narrow-leaved Daisy	Chaparral, (serpentinite)	No	May-Sept.	No	Absence of edaphic conditions required for presence.
Eriogonum nervulosum Snow Mountain Buckwheat	Chaparral, (serpentinite)	No	June-Sept.	No	Absence of edaphic conditions required for presence.
Eryngium constancei Loch Lomond Button-celery or Coyote Thistle	Vernal Pools	No	April-June	No	Absence of mesic conditions required for presence.
Fritillaria liliacea Fragrant Fritillary	Heavy Soil, Open Grasslands, Fields near Coast	No	Feb.-April	No	Absence of edaphic conditions required for presence.

Fritillaria pluriflora Adobe-lily	Chaparral, Cismontane Woodland, Valley and Foothill Grassland	Yes	Feb.-April	No	No evidence for presence
Harmonia hallii Hall's Harmonia	Open Areas of Serpentine Chaparral	No	April-June	No	Requisite edaphic habitat absent on the site or in the immediate vicinity.
Hemizonia congesta ssp. *congesta* Congested Headed Tarplant	Coastal Grassland	No	April Oct.	No	Absence of requisite habitat.
Hesperolinon bicarpellatum Two-carpellate Western Flax	Chaparral	Yes	May-July	No	No evidence for presence.
Hesperolinon sharsmithiae Sharsmith's Western Flax	Serpentine endemic	No	May-July	No	Requisite edaphic habitat absent on the site or in the immediate vicinity.
Juncus luciensis Santa Lucia Dwarf Rush	Seeps, Meadows, Vernal Pools, Stream sides	No	April-June	No	Absence of requisite mesic habitat.
Lasthenia conjugens Contra Costa Goldfields	Wet Meadows, Vernal Pools	No	May-June		Lack of suitable mesic habitat.
Layia septentrionalis Colusa Layia	Cismontane Woodland, Valley & Foothill Grassland, Chaparral Serpentinite, or sandy soils	No	April-May	No	Requisite edaphic habitat absent on the site or in the immediate vicinity.
Leptosiphon jepsonii Jepson's Leptosiphon	Open or partially shaded grassy slopes	No	April-May	No	Lack of suitable habitat.
Lessingia hololeuca Woolly-Headed Lessingia	Valley and Foothill Grassland, Serpentinite	No	June-Oct.	No	Absence of requisite edaphic habitat on the site or in the immediate vicinity precludes presence.
Limnanthes vinculans Sebastopol Meadowfoam	Meadows & Seeps, Valley & Foothill Grassland, Vernal Pools	No	April-May	No	Requisite mesic habitat absent on the site or in the immediate vicinity.
Lupinus sericatus Cobb Mountain Lupine	Broadleaved Upland Forest, Chaparral, Cismontane Woodland	Yes	March -June	No	No evidence for presence

Microseris paludosa Marsh Microseris	Closed Cone Conifer Forests, Cismontane Woodland, Valley and Foothill Grassland	No	April-June	No	Absence of typical habitat and vegetation associates.
Navarretia leucocephala ssp. *bakeri* Baker's Navarretia	Meadows and Seeps Cismontane Woodland, Valley and Foothill Grassland, Vernal Pools	No	May-July	No	Requisite mesic habitat absent on the site or in the immediate vicinity.
Navarretia rosulata Marin County Navarretia	Closed Cone Coniferous Forest, Chaparral, Serpentinite	No	May-July	No	Requisite edaphic conditions absent on the site or in the immediate vicinity.
Penstemon newberryi var. *sonomensis* Sonoma Beardtongue	Cismontane Woodland	Yes	April-Aug.	No	No evidence for presence.
Plagiobothrys strictus Calistoga Popcorn-flower or Calistoga Allocarya	Vernal Pools near thermal springs	No	March -June	No	Requisite mesic habitat absent on the site or in the immediate vicinity.
Poa napensis Napa Blue Grass	Meadows near Hot Springs	No	May-Aug.	No	Requisite mesic habitat absent on the site or in the immediate vicinity.
Sidalcea hickmanii ssp. *napensis* Napa Checkerbloom	Chaparral Serpentinite	No	May-June	No	Lack of habitat.
Sidalcea oregana ssp. *hydrophila* Marsh Checkerbloom	Meadows and Seeps, Riparian Scrub Mesic	No	June-Aug.	No	Requisite mesic habitat absent.
Streptanthus bachiatus ssp. *brachiatus* Socrates Mine Jewel-flower	Chaparral, Cismontane Woodland Serpentinite	No	May-June	No	Edaphic habitat not present.
Streptanthus bachiatus ssp. *hoffmanii* Freed's Jewel-flower	Serpentine outcrops	No	May-July	No	Edaphic habitat not present.
Strepthanthus hesperidis Green Jewel-flower Mt. Diablo Jewel-flower	Chaparral, Valley and Foothill Grassland/ Rockey	No	April-July	No	Lack of edaphic habitat.

Strepthanthus morrisonii var. *elatus* Three Peak's Jewel-flower	Serpentinite	No	April-July	No	Lack of edaphic habitat.
Strepthanthus vernalis Early Jewel-flower	Serpentinite	No	March-May	No	Lack of edaphic habitat.
Trichostema ruygtii Napa Bluecurls, Vinegar Weed	Open areas with thin clay soils seasonally saturated	No	June-Oct.		Requisite habitat absent on the site.
Trifolium buckwestiorum Santa Cruz Clover	Grassy or Disturbed areas.	No	May-June	No	Historic use and Mowing of the site.
Viburnum ellipticum Oval-leaved Viburnum	Chaparral, Cismontane Woodland, Lower Coniferous Forest	No	May-June	No	Requisite habitat absent on the site or in the immediate vicinity.

D.4 Findings Related to Special-Status Plant species

Special-status species are limited in nature due to their specific growth requirements including physical tolerance for factors such as nutrients, moisture, and light, as well as biological factors such as competition and succession.

Two special-status plants were present within the study area that are listed by the California Native Plant Society (CNPS): Calistoga Ceanothus (*Ceanothus divergens* CNPS List 1.B.2) and Napa False Indigo (*Amorpha californica* var. napensis CNPS List 1.b.2).

Calistoga Ceanothus (*Ceanothus divergens*) was found along the proposed road alignment and on the west side of the proposed winery. Approximately 30 plants were identified.

Napa False Indigo (*Amorpha californica* var. napensis) was found within the Tan Oak Forest Alliance south of the proposed winery within the area proposed for leach field. Approximately 50 plants were observed.

E. ASSESSMENTS OF POTENTIAL IMPACTS

The significance of potential impacts is a function of the scope and scale of the proposed project within the existing Federal, State and Local regulations and management practices. The determination of significance of impacts to biological resources consists of an understanding of the project as proposed and an evaluation of the context in which the impact may occur. The extent and degree of any impact on-site or off–site must be evaluated consistent with known or expected site conditions. Therefore, the significance of potential impacts is assessed relevant to a site-specific scale and the larger regional context.

The project's effect to on-site or regional biological resources is considered to be significant if the project results in:

- Alteration of unique characteristics of the area, such as sensitive plant communities and habitats (i.e. serpentine habitats, wetlands, riparian habitats);
- Adverse impacts to special-status plant and animal species;
- Adverse impacts to important or vulnerable resources as determined by scientific opinion or resource agency concerns (i.e. sensitive biotic communities, special-status habitats; e.g. wetlands);
- Loss of critical breeding, feeding or roosting habitat; and interference with migratory routes or habitat connectivity.

Discussion of the ***significance*** of special-status plant populations in the project area considering nearby populations and total species distribution

The two special-status plants are present within the study area are listed by the California Native Plant Society (CNPS): Calistoga Ceanothus (*Ceanothus divergens* CNPS List 1.B.2) and Napa False Indigo (*Amorpha californica* var. napensis CNPS List 1.b.2). These taxons do not have State or Federal Listing. It appears that the project will impact at least 50 % of the plants on the property.

The CDDFW CNDDB Rare Find Five Mile search shows seven populations of the Calistoga Ceanothus within five miles of the project site.

The CDDFW CNDDB Rare Find Five Mile search shows eight populations of the Napa False Indigo within five miles of the project site.

There are three Napa County Baseline Data Report Sensitive Biotic Communities on the project site. Redwood Forest and Tanbark Oak Alliance are along the proposed road alignment and Coastal and Valley Freshwater Marsh is associated with the pond. It is our interpretation that the road alignment impacts to the Redwood Forest and Tanbark Oak Alliances will be less than significant.

Potential impacts to the Freshwater Marsh associated with the pond will have to be determined through agency consultation.

E.1 Recommend Measures to Avoid Impacts

All project construction activities must be limited to the project footprint. Any access road improvements or widening must be done using Best Management Practices (BMPs) and avoid impact to drainages. BMPs including silt and erosion control measures must be implemented during construction to protect off-site movement of sediment and dust during and post construction.

Individual plants of Calistoga Ceanothus and Napa False Indigo have been flagged in the Field.

It is recommended that the project road alignment be adjusted to eliminate impact to the single Calistoga Ceanothus population on the north edge of the road.

We recommend avoidance of disturbance to the populations of Calistoga Ceanothus and Napa False Indigo. Approximately 50% of the populations of the Calistoga Ceanothus and Napa False Indigo are within the proposed project footprint. If it is determined that avoidance is impracticable the portions outside of the disturbance area must be preserved and protected. A no disturbance buffer should be placed around individual plant(s) or population(s) during activities that could result in disturbance. A greater no disturbance buffer may be warranted to ensure the hydrology of the site is not disrupted and the plants and seed bank will not be impacted. The no disturbance buffer will be clearly identified in the field by staking, flagging, or fencing around depressions, swales, or other features containing Calistoga Ceanothus and Napa False Indigo plants. Project activity will avoid buffer areas to ensure that the buffer area is not being encroached upon and that effects are being avoided.

Placement of wine cave spoils in the Fresh Water Marsh of the Pond will require agency consultation and permits if agency consultation determines that the area is jurisdictional from the California Department of Fish and Wildlife, U.S. Army Corps of Engineers, and Regional Water Quality Control Board for impacts to “Waters of the State.” Agency policies will determine mitigation requirements

If special-status plant species found cannot be avoided, then a Mitigation Plan will require approval by California Department of Fish and Game. We recommend agency consulatation prior to the development of a Mitigation Plan

The plan would specify, at a minimum, the following: (1) the location of the mitigation site(s); (2) procedures for procuring plants, such as transplanting or collecting seed from plants to be impacted; (3) procedures for propagating collected seed; (4) the quantity and species of plants to be planted or transplanted; (4) planting procedures, including the use of soil preparation and irrigation; (5) a schedule and action plan to maintain and monitor the mitigation site for a minimum 5 year period; (6) reporting procedures, including the contents of annual progress reports; (7) a list of criteria (e.g., growth, plant cover, survivorship) by which to measure success of the plantings; and (8) contingency measures to implement if the plantings are not successful.

F. SUMMARY

This botanical survey and report is provided as background material necessary for securing permits for the project.

Two special-status plants are present within the study area that are listed by the California Native Plant Society (CNPS): Calistoga Ceanothus (*Ceanothus divergens* CNPS List 1.B.2) and Napa False Indigo (*Amorpha californica* var. napensis CNPS List 1.b.2). These plants do not have State or Federal Listing but are listed by the California Native Plant Society. These plants have been flagged in the field.

The Napa County Baseline Data Report (NCBDR) as well as the California Department of Fish and Wildlife Natural Diversity Data Base (CDFW CNDDB) lists recognized Sensitive Biotic Communities.

There are three Napa County Baseline Data Report Sensitive Biotic Communities on the project site. Redwood Forest and Tanbark Oak Alliance are along the proposed road alignment and Coastal and Valley Freshwater Marsh is associated with the pond that is proposed for cave spoils.

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APPENDIX A

Plants Observed 2018

The nomenclature for the list of plants found on the project study areas and the immediate vicinity follows: Lichens of North America, 2001, and The Jepson Manual 2012, for the vascular plants.

Habitat type indicates the general associated occurrence of the taxon on the project site or in nature.
Abundance refers to the relative number of individuals on the project site or in the region.

MAJOR PLANT GROUP
Family
Genus **Habitat Type** **Abundance**
Common Name

NCN = No Common Name, * = Non-native, @= Voucher Specimen

FUNGI
Ascomycota - Sac Fungi
DALDINEACEAE
Annulohypoxylon thousarsianum (Lev.) Ja, Rogers & Hsieh On Dead Oak Common
Cramp Balls, Carbon Balls *(=Hypoxylon t., = Daldinia grandis)*

MOSSES
BRACHYTHECIACEAE
Homalothecium nuttallii (Wilson) Jaeger Logs, Tree Trunks Common
NCN
CRYPHACEAE
Dendroalsia abietina (Hook.) Brit. Woodlands Common
NCN
HEDWIGIACEAE
Pseudobraunia californica (Lesq.) Broth. Woodlands on Base of Trees Common
NCN Also on rocks or cut banks
LEUCODONTACEAE
@Antitrichia californica Sulliv. In Lesq. Hardwood Bark Common
NCN
ORTHOTRICHACEAE
@Orthotrichum lyellii Hook & Tayl. Woodlands, Upper Canopy Common
NCN
Scleropodium touretii (Brid.) L Koch. Woodlands Common
NCN

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MAJOR PLANT GROUP **Family** **Genus** **Common Name**	**Habitat Type**	**Abundance**

NCN = No Common Name, * = Non-native, @= Voucher Specimen

POLYTRICHACEAE		
Polytrichum juniperinum Hedw. Haircap Moss	Woodlands	Occasional
LIVERWORTS: "COMPLEX THALLOID"		
AYTONIACEAE		
Astrella bolanderi (Austin) Underw. NCN	On Soil of Road Banks	Occasional
LIVERWORTS: "LEAFY"		
FOSOMBRONIACEAE		
Fossombronia pusilla (L.) Nees NCN	On Soil Shaded Hillsides	Occasional
LICHENS		
FOLIOSE		
Flavopunctilia flaventor (Stirt.) Hale Speckled Green Shield	On Oaks, Rocks	Common
Flavopunctilia soridica Powder Edge Speckled Green Shield	On Oaks	Common
Hypogymina imshaugii Krog NCN	On Conifers, Oaks	Common
@Hypogymnia inactiva (Krog) Ohlsson NCN	On Oaks	Common
@Melanelia incolorata (Parrique) Essl. NCN (=*Melanohalea elegantula*)	On Trees and Shrubs	Common
Parmelia sulcata Taylor Hamered Shield Lichen	On Bark	Common
Parmotrema perlatum (Osbeck) Hale & Ahti=*P. chinense* NCN	On Oaks	Common
Physcia biziana (A. Massal.) Zahlbr. NCN	On Oaks	Common
Xanthoparmelia cumberlandia (Gyeln.) Hale NCN	On Rocks	Common
Xanthoria polycarpa (Hoffm.) Rieber Pin-cushion Sunburst Lichen	On Oaks Young Twigs	Common
FRUTICOSE		
Cladonia asahinae J. W. Thomson Pixie-cup	On Rocks wMosses	Occasional
Cladonia coniocrea (Flörke) Spreng. Common Powderhorn	On Soil,	Common

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MAJOR PLANT GROUP		
Family		
Genus	**Habitat Type**	**Abundance**
Common Name		

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Cladonia scabriuscula (Delise) Nyl. NCN	On Soil	Occasional
Evernia prunastri (L.) Ach. NCN	On Oaks	Common
@Ramalina farinacea (L.) Ach. NCN	On Oaks	Common
@Usnea glabrata (Ach.) Vain. *NCN*	On Oaks	Common
Usnea intermedia=U. arizonica NCN	On Oaks	Common
CRUSTOSE		
Leicidia atrobrunnea (Ramond ex Lam. & DC.) Schaer. NCN	On Rocks	Common
Pertusaria armara (Ach.) Nyl. NCN	On Oaks	Common

VASCULAR PLANTS FERNS

DENNSTAEDTIACEAE		
Pteridium aquilinum (L.) var. *pubescens* Underw. Bracken Fern	Grasslands or Woodlands	Common
DRYOPTERIDACEAE		
Dryotpteris arguta (Kaulf.) Maxon Coastal Wood Fern	Oak Woodlands	Common
Polystichum munitum (Kaulf.) C Presl Sword Fern	edwood or Riparian	Common
POLYPODIACEAE		
Polypodium californicum Kaulf. Common Polypody	Woodlands or Riparian	Common
PTERIDACEAE		
Adiantum aleuticum (Rupr.) CAParis Five-finger Fern	Canyons and Shadey Slopes	Occasional
Pentagramma triangularis (Kaulf.) G.Yatsk. subsp. *triangularis* Goldback Fern	Woodland	Common

VASCULAR PLANTS DIVISION CONIFEROPHYTA--GYMNOSPERMS

PINACEAE		
Pinus attenuata Lemmon Knobcone Pine	Woodlands	Occasional
Pseudotsuga menziesii (Vassey) Mayr var. *menziesii* Douglas-fir	Woodlands	Common

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MAJOR PLANT GROUP **Family** **Genus** **Common Name**	**Habitat Type**	**Abundance**

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TAXODIACEAE		
Sequoia sempervirens (D.Don) Endl. Redwood	Woodlands	Common
VASCULAR PLANTS DIVISION ANTHOPHYTA --ANGIOSPERMS		
CLASS--DICOTYLEDONAE- TREES		
MAGNOLIIDS		
LAURACEAE		
Umbellularia californica (Hook.&Arn.) Nutt. California Laurel, Sweet Bay, Pepperwood, California Bay	Conifer&Oak Woodlands	Occasional
EUDICOTS		
CORNACEAE Dogwood Family		
Cornus sessilis Durand Creek Dog Wood	Woodlands, Riparian	Occasional
ERICACEAE Heath Family		
Arbutus menziesii Pursh Madrone	Woodlands	Common
FAGACEAE Oak Family		
Notholithocarpus densiflorus (Hook&Arn.)Manos var. *densiflorus* Tan Oak	Woodlands	Common
Quercus agrifolia Nee Live Oak	Woodlands	Common
Quercus chrysolepis Liebm. Canyon Live Oak, Maul	Woodlands	Common
Quercus kelloggii Newb. Black Oak	Woodlands	Common
Quercus wislizenii A.D.C. Interior Live Oak	Woodlands	Occasional
OLEACEAE Olive Family		
**Olea europaea* L. Olive	Domestic Ruderal	Occasional
SAPINDACEAE Soapberry Family		
Acer macrophyllum Prush Big-leaf Maple	Riparian, Stream Banks, Canyons	Common
Aesculus californica (Spach) Nutt. California Buckeye	Woodlands, Riparian	Common

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MAJOR PLANT GROUP		
Family		
Genus	**Habitat Type**	**Abundance**
Common Name		

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VASCULAR PLANTS DIVISION ANTHOPHYTA --ANGIOSPERMS
CLASS--DICOTYLEDONAE-SHRUBS AND WOODY VINES
MAGNOLIIDS

ARISTOLOCHIACEAE Pipevine Family		
Aristolochia californica Torry	Woodlands	Occasional
Dutchman's Pipe, Pipevine		
CALYCANTHACEAE Calycanthus Family		
Calycanthus occidentalis Hooker&Arn.	Riparian, Woodlands	Occasional
Spicebush		

EUDICOTS

ANACARDIACEAE Sumac Family		
Toxicodendron diversilobum (Torry&Gray) E.Green	Woodlands	Common
Poison Oak		
ASTERACEAE (Compositae) Sunflower Family		
Baccharis pilularis deCandolle	Woodlands, Grasslands	Common
Coyote Brush		
BETULACEAE Birch Family		
Corylus cornuta Marshall var. *californica*	Riparian, Woodlands	Occasional
Hazelnut		
CAPRIFOLIACEAE Honeysuckle Family		
Lonicera hispidula Douglas var. *vacillans*	Woodlands, Riparian	Occasional
Honeysuckle		
Lonicera interrupta Bentham	Woodlands	Occasional
Chaparral Honeysuckle		
ERICACEAE Heath Family		
Arctostaphylos canescens Eastwood var. *canescens*	Chaparral, Woodlands	Common
Hoary Manzanita		
Arctostaphylos manzanita Parry ssp. *glaucesens*	Woodlands	Common
Common Manzanita		
Arctostaphylos glandulosa Eastwood ssp. *cushingiana*	Woodlands, Chaparral	Common
Cushing Manzanita-Scabrous Leaf		
Arctostapylos stanfordiana C. Parry ssp. *stanfordiana*	Chaparral,	Common
Stanford Manzanita		
FABACEAE (Leguminosae) Legume Family		
Acmispon glabor (Vogel) Bouillet	Grasslands, Chaparral	Common
Deerweed, California Broom (=*Lotus scoparius*)		
Amorpha californica Nuttall var. *napensis*	Chaparral, Woodlands	Rare
Napa False Indigo		
**Genista monspessulana* (L.) Johnson	Woodlands	Common
Broom, French Broom		

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MAJOR PLANT GROUP **Family** **Genus** **Common Name**	**Habitat Type**	**Abundance**

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Pickeringia montana Nutt. Chaparral Pea	Chaparral	Common
FAGACEAE Oak Family		
Quercus berberidifolia Liebm. California Scrub Oak	Chaparral	Common
GARRAYACEAE Silk Tassel Family		
Garrya flavescens S.Watson Silk Tassel Bush	Chaparral	Occasional
HYDRANGEACEAE Hydrangea Family		
Whipplea modesta Torrey Whipplea, Yerba de Selva	Woodlands	Common
LAMIACEAE Mint Family		
Monardella villosa Benth. subsp. *villosa* Coyote Mint	Woodlands/ Chaparral	Occasional
Monardella viridis Benth. subsp. *viridis* Green Monardella	Chaparral	Occasional
PHRYMACEAE Lopseed Family		
Mimulus aurantiacus Curtis Bush Monkey Flower	Woodlands	Occasional
RHAMNACEAE Buckthorn Family		
Ceanothus divergens Parry Calistoga Ceanothus	Chaparral	Rare
Ceanothus intergerrimus Hook.& Arn. var. *integerrimus* Deer Brush	Chaparral	Common
Ceanothus foliosus Parry var. *foliosus* Wavyleaf Ceanothus	Chaparral	Common
ROSACEAE Rose Family		
Adenostoma fasciculatum Hooker&Arn. Chamise	Shrub/Scrub	Common
Cercocarpus betuloides Nutt. var.*betuloides* Mountain-mahogany	Shrub/Scrub,Chaparral	Common
Heteromeles arbutifolia (Lind.) M. Rome. Christmas Berry, Toyon	Shrub/Scrub	Common
Rosa gymnocarpa Nuttall. Wood Rose	Woodlands	Occasional

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MAJOR PLANT GROUP **Family** **Genus**	**Habitat Type**	**Abundance**
Common Name		

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VASCULAR PLANTS DIVISION ANTHOPHYTA --ANGIOSPERMS
CLASS--DICOTYLEDONAE-HERBS
EUDICOTS

APIACEAE (Umbelliferae) Carrot Family		
**Dacus carota* L. Wild Carrot, Queen Anne's Lace	Ruderal Grasslands	Common
Osmorhiza bertoli DC. Sweet Cicely (=*Osmorhiza chilense)*	Woodlands, Ruderal	Common
**Torilis arvensis* (Huds.) Link Hedge-parsley	Grasslands Woodlands	Common
ASTERACEAE (Compositae) Sunflower Family		
Adenocaulon bicolor Hook. Trail Plant	Woodlands	Common
**Carduus pycnocephalus* L.subsp.*pycnocephalus* Italian Thistle	Woodlands	Common
**Circium vulgare* (Savi) Ten. Bull Thistle	Grasslands, Ruderal	Common
Eriophyllum lanatum (Pursh) J.Forbes var. *achillaeoides* Common Wooley Sunflower	Dry Slopes	Common
**Heterothecia grandiflora* Nutt. Telegraph Weed	Ruderal, Riparian	Occasional
Hieracium albiflorum Hook. White-flowered Hawkweed	Woodlands, Grasslands	Occasional
**Hedypnois cretica* (L.) Dum.Cours. Crete Weed	Ruderal	Occasional
**Hypochaeris glabra* L. Cat's Ear	Ruderal	Common
**Lactuca serriola* L. Prickly Lettuce	Ruderal	Occasional
**Lentodon saxatilis* Lam Harry Hawkbite (= *Lentodon taraxacoides)*	Ruderal, Grasslands of Woodlands	Common
**Logifa gallica* (L.) Cros&Germ Herba Impa, Daggerleaf Cottonrose (=*Filago gallica)*	Ruderal	Common
Madia elegans D.Don Common Madia	Ruderal, Grasslands	Common
Pseudognaphalium californicum (DC.)Anderb. Cudweed (=*Gnaphalium californicum)*	Dry Open Woodlands	Occasional
Pseudognaphalium canescens (DC.)Anderb. Cudweed(=*Gnaphalium canescens)*	Chaparral	Occasiona
**Senecio vulgaris* L. NCN	Ruderal	Occasional

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MAJOR PLANT GROUP **Family** **Genus** **Common Name**	**Habitat Type**	**Abundance**

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**Sonchus asper* (L.) Hill var. *asper* Prickly Sow Thistle	Ruderal	Common
**Sonchus oleraceus* L. Common Sow Thistle	Ruderal	Common
**Taraxacum officinale* F.H.Wigg Dandelion	Ruderal	Common
Xanthium strumarium L. Cocklebur	Ruderal	Occasional
BRASSICACEAE Mustard Family		
**Hirschfeldia incana* (L.) Lagr.-Fossat Summer Mustard	Ruderal	Common
BORAGINACEAE Borage or Waterleaf Family		
Plagiobothrys bracteatus (Howell) I.M.Johnst. Bracted Popcorn Flower	Grasslands, Moist areas	Common
CONVOLVULACEAE Morning-glory Family		
Calystegia collina (Green) Brum. subsp. *collina* NCN	Chaparral	Occasional
EUPHORBIACEAE Spurge Family		
Croton setigerus Hook. Turkey Mullein, Dove Weed (=*Eremocarpus setigerus)*	Ruderal	Common
**Euphorbia oblongata* Grseb. Oblong Spurge	Ruderal, Invasive Noxious Weed	Common
FABACEAE (Leguminosae) Legume Family		
Acmispon brachycarpus (Benth.) Sokoloff NCN (=*Lotus humistratus)*	Grasslands, Ruderal	Common
**Medicago polymorpha* L. Bur Clover	Ruderal, Grasslands	Common
Lathyrus vestitus Nutt. var. *vestitus* Hillside Pea	Woodlands	Occasional
**Lotus corniculatus* L. Bird's-foot Trefoil	Grasslands, Ruderal	Common
**Trifolium hirtum* All. Rose Clover	Ruderal	Common
GERANIACEAE Geranium Family		
**Erodium botrys* (Cav.) Bertol. Broadleaf Filaree, Long-beaked Filaree	Grasslands	Common
HYPERICACEAE St John's Wort Family		
**Hypericum perforatum* L. subsp. *perforatum* Klamath Weed	Ruderal/Grasslands	Occasional

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MAJOR PLANT GROUP **Family** **Genus** **Common Name**	**Habitat Type**	**Abundance**

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LIMNANTHACEAE Meadofoam Family		
Floerkea proserpinacoides Willd. NCN	Moist, Grasslands, Open Woodlands	Occasional
MONTIACEAE Miner's lettuce Family		
Calandrinia ciliata Ruiz& Pav. DC. Red Maids	Grasslands	Common
ONAGRACEAE Evening-primrose Family		
Epilobium brachycarpum C.Presl Willow Herb	Ruderal Dry Areas	Common
PAPAVERACEAE Poppy Family		
Eschscholzia californica Cahm. California Poppy	Grasslands	Common
PLANTAGINACEAE Plantain Family		
**Kickxia elantine* (L.) Dumort. Sharp Leaf Fluellin	Ruderal	Occasional
**Plantago lanceolata* L. English Plantain	Ruderal	Common
POLEMONIACEAE Phlox Family		
Navarretia melita Green Honey-scented Navarretia	Open Slopes Grasslands	Common
Navarretia squarrosa (Eschsch.) Hook.&Arn. Skunkweed	Ruderal, Grasslands	Common
POLYGALACEAE Milkwort Family		
Polygala californica Nutt. Milkwort	Woodlands, Shrub/Scrub	Occasional
POLYGONACEAE Buckwheat Family		
**Rumex crispus* L. Curly Dock	Ruderal	Common
PRIMULACEAE Primrose Family		
**Anagallis arvensis*L. Scarlet Pimpernel	Ruderal	Common
RUBIACEAE Madder Family		
Galium porrigens Dempster Climbing Bedstraw	Grasslands, Woodlands	Common
SCROPHULARIACEAE Figwort Family		
**Verbascum blattaria* L. Moth Mullein	Ruderal	Occasional

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MAJOR PLANT GROUP
Family

Genus	Habitat Type	Abundance
Common Name		

NCN = No Common Name, * = Non-native, @= Voucher Specimen

VASCULAR PLANTS DIVISION ANTHOPHYTA --ANGIOSPERMS
CLASS--MONOCOTYLEDONAE-GRASSES

POACEAE Grass Family

**Aira caryophyllea* L. Silver European Hairgrass	Grassland	Common
**Avena barbata* Link. Slender Wild Oat	Grasslands	Common
**Brachypodium distachyon* (L.) Beauv. False Brome	Ruderal	Occasional
**Briza minor* L. Small Quaking Grass	Grasslands, Ruderal	Common
**Bromus diandrus* Roth Ripgut Grass	Ruderal, Grasslands	Common
**Bromus hordeaceus* L. Soft Chess, Blando Brome (*B.mollis*)	Grasslands	Common
**Bromus madritensis* L. ssp. *rubens* Foxtail Chess	Grasslands, Ruderal	Common
**Cynosurus echinatus* L. Hedgehog, Dogtail	Ruderal	Common
Elymus glaucus Buckley ssp. *glaucus* Blue Wildrye	Woodlands	Common
**Festuca bromoides* L. Six-weeks Fescue *(=Vulpia bromoides)*	Ruderal, Moist Flats become Dry	Common
Festuca microstachys Nutt. NCN (=*Vulpia microstachys)*	Grasslands, Ruderal	Common
**Festuca myuros* L. Rattail Fescue, Zorro Annual Fescue (=*Vulpia myuros)*	Grasslands	Common
**Festuca perennis* (L.) Columubus & Sm. Perennial Rye Grass (=*Lolium multiflorum, L. perenne)*	Grasslands	Common
Gastridium phleoides (Nees& Meyen) Hubb. Nit Grass (=*Gastridium ventricosum)*	Ruderal, Grasslands	Occasional
**Hordeum murinum* Huds. subsp. *leporinum* Farmers Foxtail	Grasslands	Common
Melica torreyana Schribn. Torrey's Melic	Chaparral, Woodlands	Common
**Polypogon maritimus* Willdenow Mediterranean Beard Grass	Wetlands	Common

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MAJOR PLANT GROUP		
Family		
Genus	**Habitat Type**	**Abundance**
Common Name		

NCN = No Common Name, * = Non-native, @= Voucher Specimen

VASCULAR PLANTS DIVISION ANTHOPHYTA --ANGIOSPERMS
CLASS--MONOCOTYLEDONAE-SEDGES AND RUSHES

CYPERACEAE Sedge Family		
Cyperus eragrostis Lam. Nut-grass	Ruderal Moist Areas	Common
Eleocharis macrostachya Britton Spike Rush	Riparian, Aquatic	Common
Schoenoplectus californicus (Mey.) Sojak Southernbull Rush.California Tule (=*Scirpus)*	Palustrine	Occasional
Juncus bufonius L.var. *bufonius* Toad Rush	Ruderal Moist Areas, Grasslands	Common
Juncus oxymeris Engelm. Pointed Rush	Meadows	Uncommon
Juncus tenuis Willd. NCN	Dry or Moist Soils	Occasional

VASCULAR PLANTS DIVISION ANTHOPHYTA --ANGIOSPERMS
CLASS--MONOCOTYLEDONAE-HERBS

AGAVACEAE Centuray Plant Family		
Chlorogalum pomeridianum (DC.) Kunth var. *pomeridianum* Soap Plant	Woodlands	Common
ALISMATACEAE Water-plantain Family		
Alisma triviale Pursh Water Plantain (=*Alisma plantago-aquatica)*	Aquatic	Common
LILIACEAE Lily Family		
Iris macrosiphon Torr. Long-tubed Iris	Sunny Woody or Grassy Hillsides	Occasional
**Iris pseudoacoris* L. Yellow Iris	Palustrine	Common
MELANTHIACEAE False-hellebore Family		
Calochortus amabilis Purdy Yellow Globe Lily, Diogenes' Lantern	Grasslands, Woodlands	Occasional
Toxicoscordion fremontii (Torr) Rydb. Star Lily (= *Zigadenus)*	Grassy or Wooded Slopes Outcrops	Occasional
Xerophyllum tenax (Pursh) Nutt. Bear Grass	Woodlands	Occasional
POTOMOGETONACEAE Pondweed Family		
Potamogeton nodosus Poir. Pondweed	Aquatic/Lacustrine	Common

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APPENDIX B

California Native Plant Society Electronic Inventory

California Department of Fish and Wildlife Special-status Plants for the Quadrangle and Surrounding Quadrangles

U.S. Fish and Wildlife Service Listed Plant Species for the Quadrangle